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ARCADIS

Subject:

Surface-Water/Sediment Sampling Report South Branch of Bear Creek Beazer/INDSPEC Properties Site Petrolia, Butler County, Pennsylvania

Dear Ms. Duerring:

On behalf of the Beazer East, Inc. (Beazer) and INDSPEC Chemical Corporation (INDSPEC), ARCADIS U.S., Inc. (ARCADIS) provides the following Surface-Water/Sediment Sampling Report (Report) to the Pennsylvania Department of Environmental Protection (PADEP) for the above-referenced site located in Petrolia, Pennsylvania (**Figure 1**). This Report describes surface-water and sediment sampling activities conducted in accordance with the *Surface-Water/Sediment Sampling Work Plan* submitted to PADEP on May 1, 2014 and approved by PADEP in a May 27, 2014 e-mail from Ms. Nancy Duerring of PADEP to Mr. Mark Hanish of ARCADIS. The surface-water and sediment sampling outlined in this Report was conducted to supplement the surface-water and sediment data reported in the *Remedial Investigation Report* (RIR) submitted by Langan Engineering and Environmental Services, Inc. (Langan), on behalf of Beazer and INDSPEC, in June 2013. The activities and findings of the sampling are described below.

Surface-Water Sampling

The surface-water sampling program was designed to provide a more current understanding of surface-water quality under conditions subsequent to placement of the Aquablok® cap within a portion of the South Branch of Bear Creek (Creek) located within the facility boundary. Surface-water samples were collected in the same locations that previous samples were collected within the Creek.

Sampling was initiated based on consultation of on-line local rainfall data from a nearby weather station (Weather Underground Weather Station ID: KPABUTLE3 in Butler, Pennsylvania) and concurrent consultation of real-time data from the two nearest local stream gauging stations that were determined to be the best suited analogs for showing current and predicted stage conditions for the Creek. The following two stream gauging stations were consulted:

Date:

August 26, 2015

Contact:

Mark B. Hanish

Phone:

724.934.9518

Email:

mark.hanish@arcadis-us.com

Our ref:

B0039303.0000

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- United States Geological Survey (USGS) Gauging Station 03049000 on Buffalo Creek near Freeport, Pennsylvania
- USGS Gauging Station 03106300 on Muddy Creek near Portersville, Pennsylvania

ARCADIS conducted one sampling event from September 3 through 5, 2014, and a second sampling event on December 3 and 4, 2014. Rainfall conditions leading up to, through, and immediately following the sampling events are summarized in **In-Text Table 1**.

In-Text Table 1
Measured Rainfall (Inches)

Date	Butler, Pennsylvania Weather Station ID: KPABUTLE3 N 40 ° 53 ' 27 ", W 79 ° 54 ' 0 "	Onsite Rain Gauge
Aug. 30, 2014	0.00	0.00
Aug. 31, 2014	0.74	0.36
Sep. 1, 2014	0.01	0.00
Sep. 2, 2014	0.12	0.07
Sep. 3, 2014	0.00	0.01
Sep. 4, 2014	0.00	0.01
Sep. 5, 2014	0.00	0.01
Nov. 29, 2014	0.00	0.05
Nov. 30, 2014	0.00	0.00
Dec. 1, 2014	0.09	0.03
Dec. 2, 2014	0.13	0.13
Dec. 3, 2014	0.01	0.02
Dec. 4, 2014	0.00	0.00
Dec. 5, 2014	0.29	0.30

Note: Bold entries indicate sampling dates.

Although there was some rainfall observed in the area immediately prior to the September 2014 sampling event (see in-text table below), the analog gauging stations indicated that the stage at those locations were at a summer-time low. Due to concerns for potentially missing an opportunity to obtain samples during relatively low-flow conditions, the sampling team mobilized. There was less rainfall prior to the December 2014 sampling event (averaging 0.05 inch in the 2 days prior to collecting the samples). Stream gauge height for onsite Staff Gauge 1 were recorded as presented in **In-Text Table 2**. Flows presented in **In-Text Table 2** are based on a stream hydrograph analysis performed by Langan that established gauge height/flow relationships over a period from January 8, 2011 through September 7, 2012.

In-Text Table 2
Staff Gauge and Steam Flow Measurements

Date	Staff Gauge 1 Reading (feet)	Volumetric Flow (cfs)
9/2/2014	0.85	6.07
9/3/2014	0.85	6.07
9/4/2014*	0.825	5.37
9/5/2014	0.80	4.71
12/3/2014	0.80	4.71
12/4/2014	0.81	4.97
12/8/2014	1.35	27.35
12/9/2014	1.20	19.72
12/10/2014	1.11	15.59
12/15/2014	0.90	7.59
12/19/2014	1.00	11.09

Notes:

* = interpolated value cfs = cubic feet per second

Samples were collected in accordance with ARCADIS Standard Operating Procedures (SOPs) for surface-water sampling. Samples were collected in a downstream-to-upstream sequence to minimize potential disturbance of sediments into the water column. During the December 2014 event, due to limited plant access hours, samples were collected at the offsite locations in a downstream-to-upstream sequence on December 3, 2014, and at the onsite locations in a downstream-to-upstream sequence on December 4, 2014.

Fifteen surface-water samples were collected from the Creek at the locations depicted on **Figure 2**. Of the previous locations sampled, only SG-9 was not resampled due to its close proximity to surface-water sample SW-1, which was resampled. Therefore, surface-water samples were collected from three locations upstream of the facility, seven locations within the facility boundary, and five locations downstream of the facility. Coordinates were established for each sampling location, and those locations were fixed in the field by a global positioning system (GPS). The re-established field locations were checked against the observed location of existing staff gauges as an independent confirmation of sampling locations.

Samples were collected using a dedicated sampler and directly transferred to laboratory-supplied sampling containers. Samples were preserved in accordance with the methods stipulated for the compounds of concern (COCs) and shipped under chain of custody documentation to TestAmerica Laboratories in Pittsburgh, Pennsylvania; Canton, Ohio; Tallahassee, Florida; and Burlington, Vermont (as

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directed by the laboratory contact) for analyses of the COCs listed in **Table 1**. The COC list is identical to that provided in Table 6 of the RIR, except for metals.

At each sample location, water quality parameters (dissolved oxygen, temperature, conductivity, and pH) were measured using a handheld water quality meter (Horiba U-22).

Sediment Sampling

Three sediment samples were collected at the locations depicted on **Figure 2**, with these locations coincident with the three most downstream surface-water sampling locations. These sediment samples were collected concurrently with both surface-water sampling events. The second round of sediment samples were collected due to poor method extraction recovery values reported by the laboratory for the samples collected and analyzed during the first sampling event. In addition, due to laboratory error, samples collected during the second event were not initially analyzed for phenol. Therefore, additional sediment samples were collected during a third sediment sampling (January 29, 2015) specifically for the analysis of phenol.

Sediment samples were collected in accordance with the ARCADIS SOP for sediment sample collection, from downstream-to-upstream, and were directly transferred to laboratory-supplied sampling containers. Samples were preserved in accordance with the methods stipulated for theses COCs and shipped under chain of custody documentation to TestAmerica Laboratories in Pittsburgh, Pennsylvania; Canton, Ohio; Tallahassee Florida; and Burlington, Vermont for analyses of the COCs listed in **Table 2**.

Surveying

The surface-water and sediment sample locations were horizontally located via GPS methods and referenced the Pennsylvania State Plane Coordinate system. **Figure 2** presents sample locations.

Data Validation/Data Usability

Following receipt of surface-water and sediment data from the laboratory, the data was validated in accordance with the procedures outlined in the RIR. In addition, a data usability evaluation was also performed. Select COCs in sediment sample results were qualified as rejected (R) due to quality assurance/quality control issues identified during validation and, therefore, are considered unusable. All other data were considered usable. Laboratory analytical reports, data validation summaries, and the data usability report are provided as **Attachment 1**.

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Surface-Water Sampling Results

Table 1 summarizes the surface-water sample results from the September and December 2014 sampling events. Results were compared to Pennsylvania Water Quality Standards of Criteria for Continuous Concentrations (CCC), Criteria for Continuous Concentration (CMC), and Human Health Criteria (HHC), similar to comparisons that were completed in the RIR. Many results were non-detect (ND), as shown in Table 1. All detected concentrations were below their respective CCC, CMC, and HHC.

Sediment Sampling Results

Table 2 summarizes the sediment sample results for the September 2014, December 2014, and January 2015 (phenol only) sampling events. Similar to the RIR, results were compared to their respective United States Environmental Protection Agency lowest effect levels (LEL). None of the COCs had a published severe effect level. Sample results were ND or detected at concentrations below LELs, with the exception of carbon disulfide in the duplicate sample of SED-101 and sample SED-103 (December 2014 sampling event), which were above the LEL (0.851 micrograms per kilogram). These detections were qualified as estimated (J) and are considered anomalous based on the September 2014 sample results from these locations and the sample results from all other locations.

Conclusions

Surface-water and sediment samples were collected at historical sample locations in the Creek during two 2014 sampling events. Sample results were low to ND, with no results above their respective criteria, with the exception of carbon disulfide in two samples during one event.

With the addition of these surface-water and sediment datasets, we believe that there is adequate sediment and surface-water data to finalize the RIR and Risk Assessment.

If you have any questions, please contact me at 724.742.9180 ext. 518. Sincerely,

Mark B. Hanish, P.G.

PG-001868-G Project Manager

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Copies:

John O'Hara, Pennsylvania Department of Environmental Protection Griff Miller, United States Environmental Protection Agency Jane Patarcity, Beazer East, Inc. Suda Arakere, Glenn Springs Holdings, Inc.

Attachments:

Table 1 – Summary of Surface-Water Sample Analytical Results Table 2 - Summary of Sediment Sample Analytical Results

Figure 1 – Site Location Map

Figure 2 – Surface-Water/Sediment Sampling Locations

Attachment 1 – Laboratory Analytical Data Packages, Data Validation Summaries and Data Usability Report

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Tables

Table 1 Summary of Surface-Water Sample Analytical Results

Surface-Water/Sediment Sampling Report Beazer/INDSPEC Properties Petrolia, Pennsylvania

Location ID:	DAMOO 000	DAWOO OMO	DAWOO IIIIO	11-11-	SG-1	SG-1	SG-2	SG-2	SG-3	SG-3	SG-4	SG-4	SG-5	SG-5	SG-6	SG-6	SG-7	SG-7	SG-8	SG-8	SH-1
Volatile Organics	PAWQS-CCC	PAWQS-CMC	PAWQS-HHC	Units	09/05/14	12/04/14	09/05/14	12/04/14	09/05/14	12/04/14	09/05/14	12/04/14	09/04/14	12/03/14	09/04/14	12/04/14	09/04/14	12/03/14	09/05/14	12/04/14	09/05/14
1.1.1-Trichloroethane	610	3.000		μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1.1.2.2-Tetrachloroethane	210	1,000	0.17	μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	10	1 U	1 U	1 U	1 U
1.1.2-Trichloro-1.2.2-trifluoroethane (Freon 113)				µg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	680	3,400	0.59	μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1.1-Dichloroethane				µg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1.1-Dichloroethene	1.500	7.500	33	µg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	26	130	35	µg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane				μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromoethane				μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	160	820	420	μg/L	1 U	1 U	1.2	0.69 J	1.9	1.5 [1.4]	1.6 [1.8]	1.1	1.4	1.0	1 U	1 U	1.1	0.83 J	2.6	1.0	1 U
1,2-Dichloroethane	3,100	15,000	0.38	μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (cis) (DCE)				μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (trans)	1,400	6,800	140	μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	2,200	11,000		μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	69	350	420	μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichloropropene (cis)				μg/L	1 U	1 UJ	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
1,3-Dichloropropene (trans)				μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	150	730	420	μg/L	1 U	1 U	1 U	1 U	0.36 J	0.27 J [0.29 J]		0.25 J	0.32 J	0.23 J	1 U	1 U	0.23 J	1 U	0.64 J	1 U	1 U
2-Butanone (Methyl ethyl ketone)	32,000	230,000	21,000	μg/L	5 U	5 U	5 U	5 U	0.69 J	5 U [5 U]	5 U [5 U]	5 U	5 U	5 U	0.84 J	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5,000	26,000		μg/L	5 U	5 U	5 U	5 U	5 U	5 U [5 U]	5 U [5 U]	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone (2-propanone)	86,000	450,000	3,500	μg/L	5.9 UB	5 U	6.3 UB	5 U	7.2 UB	3.2 J [5 U]	5.4 UB [5.5 UB]	5 U	8.3 UB	3.4 J	12 UB	5 U	6.3 UB	4.1 J	19 UB	3.1 J	5.7 UB
Benzene	130	640	1.2	μg/L	0.13 J	1 U	0.11 J	1 U	0.17 J	0.11 J [1 U]	0.12 J [0.15 J]	1 U	1 U	1 U	0.28 J	1 U	1 U	1 U	0.15 J	1 U	0.11 J
Bromodichloromethane			0.55	μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	370	1,800 550	4.3 47	μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U] 1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane (Methyl bromide)	110	550	47	μg/L	1 U	1 UJ	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 UJ 1 U	1 U	1 U	1 U	1 UJ 1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide Carbon tetrachloride	560	2.800	0.23	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U] 1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U
Chlorobenzene	240	1,200	130	μg/L μg/L	1 U	1 U	0.34 J	0.18 J	1.1	0.98 J [0.97 J]		0.75 J	0.66 J	0.63 J	1 U	1 U	0.43 J	0.49 J	2.1	0.65 J	1 U
Chloroethane	240	1,200		μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	390	1.900	5.7	ug/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane (Methyl chloride)	5.500	28.000		µg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane				µg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane			0.4	µg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorodifluoromethane (Freon 12)				µg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethyl ether				μg/L	1 U	1 U	0.31 J	0.17 J	1.0	1.6 [1.6]	1.5 [0.9 J]	1.1	2.4	5.8	0.11 J	1 U	6.1	12	1.1	0.49 J	0.2 J
Ethylbenzene	580	2,900	530	μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene (Cumene)				μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl Acetate				μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl Butyl Ketone (2-Hexanone)	4,300	21,000		μg/L	5 U	5 U	5 U	5 U	5 U	5 U [5 U]	5 U [5 U]	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methyl cyclohexane				μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl tert-Butyl Ether (MTBE)				μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	2,400	12,000	4.6	μg/L	1 UJ	1 UJ	1 UJ	1 U	1 UJ	1 U [1 U]	1 UJ [1 UJ]	1 UJ	1 UJ	1 U	1 U	1 UJ	1 UJ	1 U	1 UJ	1 U	1 UJ
Styrene				μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene (PCE)	140	700	0.69	μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	330	1,700	1,300	μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene (TCE)	450	2,300	2.5	μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane (Freon 11)			0.025	µg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride			0.025	μg/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Specialty Compounds				ua/l	50 U	50 U	50 U	50 U	50 U	50 U [50 U]	50 U [50 U]	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2,3',4-Trihydroxydiphenyl	1,200,000	2.000.000		μg/L	50 U		50 UJ	50 U	50 U			23 J	50 U	13 J	50 UJ	50 U		50 U	50 U	50 U	
Benzenesulfonic acid Formaldehyde	1,200,000	2,000,000	700	μg/L μg/L	9 J	50 U 50 UB	7.8 J	50 UB	50 U	27 J [20 J] 50 UB [50 UB]	54 [51] 9.7 J [50 U]	50 UB	14 J	50 UB	50 UJ	50 UB	50 U 50 U	50 UB	8.1 J	50 UB	50 UJ 15 J
m-Benzenedisulfonic acid	1.600.000	2,200	700	μg/L μg/L	120	81	110	88	3,100 D	3,100 [2,600]	3,700 D [3,200 D]	2,700	2.400 D	2,300	130	81	1.900 D	440	1.000 D	190	110
p-Phenolsulfonic acid	1,600,000	3,500,000		μg/L μg/L	50 U	50 U	50 U	50 U	180	160 [160 J]	150 [240]	2,700	120	2,300	50 U	50 U	1,900 D	440 45 J	550	94	50 U
Resorcinol	7,200	28.000	2.700	ug/L	50 U	50 U	50 U	390	50 U	440 [430]	50 U [50 U]	420	50 U	170	50 U	50 U	50 U	50 U	300	540	50 U
Semivolatile Organics	1,200	20,000	۷,100	μy/∟	30 0	300	50 0	530	50 0	770 [430]	30 0 [30 0]	720	50.0	170	50 0	30 0	500	500	300	J+U	300
Phenol			10.400	ua/L	NA	0.93 U	NA	0.93 U	NA	0.93 U [0.93 U]	NA NA	0.93 U	NA	0.93 U	NA	0.93 U	NA	0.93 U	NA	0.5 J	NA
Miscellaneous	1	1	10,700	. μg/⊏	1 10/1	0.000	14/3	0.000	1473	0.00 0 [0.00 0]	1973	0.00 0	1 17/1	0.00 0	1 17/3	0.000	1 177	0.000	14/3	0.00	
Sulfate				mg/L	93	74	95	74	95	82 [80]	92 [93]	79	98	78	89	75	99	79	98	77	90
- anato	1	1	1	mg/L						0 <u>2 [</u> 00]	02 [00]										

Notes:
Bold results indicate a detected value.

Bold and shaded results indicate a result or MDL greater than the human health criteria established in PA Code Title 25, Chapter 93.8c.

Bold and double underline results indicate a result or MDL is greater than the fish and aquatic life CMC criteria established in PA Code Title 25, Chapter 93.8c.

Bold and single underline results indicate a result or MDL is greater than the fish and aquatic life CCC criteria established in PA Code Title 25, Chapter 93.8c.

- - = no applicable screening criteria available
 [] = duplicate sample
 CCC = Criteria Continuous Concentration
 CMC = Criteria Maximum Concentration

- HHC = Human Health Criteria
 MDL = method detection limit

mg/L = midlior detection milli mg/L = milligrams per liter NA = not analyzed PAWQS = Pennsylvania Water Quality Standard μg/L = micrograms per liter

- D = Concentration is based on a diluted sample analysis.
- J = Compound present. Reported result may not be accurate or precise.
 U = Compound analyzed but not detected at a level greater than or equal to the MDL.
 UB = Compound considered non-detect at the listed value due to associated blank contamination.
- UJ = The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

Table 1 Summary of Surface-Water Sample Analytical Results

Surface-Water/Sediment Sampling Report Beazer/INDSPEC Properties Petrolia, Pennsylvania

Location ID: Date Collected:		PAWQS-CMC	PAWQS-HHC	Units	SH-1 12/04/14	SW-1 09/05/14	SW-1 12/04/14	SW-1 LANGAN 09/04/14	SW-1_LANGAN 12/04/14	SW-2 LANGAN 09/04/14	SW-2_LANGAN 12/04/14	SW-3 LANGAN 09/04/14	SW-3_LANGAN 12/03/14	SW-4 LANGAN 09/04/14	SW-4_LANGAN 12/03/14	SW-5 LANGAN 09/04/14	SW-5_LANGAN 12/03/14
Volatile Organics	PAWQ3-CCC	PAVVQ3-CIVIC	PAWQ3-HHC	Units	12/04/14	09/03/14	12/04/14	09/04/14	12/04/14	09/04/14	12/04/14	09/04/14	12/03/14	09/04/14	12/03/14	09/04/14	12/03/14
1.1.1-Trichloroethane	610	3.000		μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1.1.2.2-Tetrachloroethane	210	1,000	0.17	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1.1.2-Trichloro-1.2.2-trifluoroethane (Freon 113)				μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	680	3,400	0.59	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1.1-Dichloroethane				μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1.1-Dichloroethene	1,500	7.500	33	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1.2.4-Trichlorobenzene	26	130	35	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane				μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1.2-Dibromoethane				μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	160	820	420	μg/L	1 U	1.7	0.7 J	1 U	1 U	1 U	1 U	0.94 J	0.76 J	0.89 J	0.75 J	0.91 J	0.63 J
1.2-Dichloroethane	3.100	15.000	0.38	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (cis) (DCE)				μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1.2-Dichloroethene (trans)	1.400	6.800	140	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	2,200	11.000		μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1.3-Dichlorobenzene	69	350	420	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichloropropene (cis)				μg/L	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichloropropene (trans)				μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1.4-Dichlorobenzene	150	730	420	µg/L	1 Ü	0.3 J	1 Ü	1 U	1 U	1 U	1 U	0.22 J	1 U	1 U	1 U	1 U	1 0
2-Butanone (Methyl ethyl ketone)	32.000	230.000	21,000	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5,000	26.000	21,000	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone (2-propanone)	86,000	450.000	3,500	μg/L	5 U	8.8 UB	5 U	5.9 UB	5 U	9.7 UB	5 U	14 UB	3.8 J	16 UB	2.6 J	12 UB	2.5 J
Benzene	130	640	1.2	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane			0.55	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	370	1.800	4.3	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane (Methyl bromide)	110	550	47	µg/L	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Carbon disulfide				μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon tetrachloride	560	2.800	0.23	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	240	1,200	130	μg/L	1 U	0.7 J	0.32 J	1 U	1 U	1 U	1 U	0.35 J	0.42 J	0.32 J	0.45 J	0.32 J	0.34 J
Chloroethane		1,200		μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	390	1.900	5.7	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane (Methyl chloride)	5,500	28.000		µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane				μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane			0.4	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorodifluoromethane (Freon 12)				µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethyl ether				μg/L	0.1 J	0.54 J	0.26 J	1 U	1 U	1 U	1 U	5.5	13	6.6	8.1	7.9	8.6
Ethylbenzene	580	2.900	530	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene (Cumene)				µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl Acetate				μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
Methyl Butyl Ketone (2-Hexanone)	4,300	21,000		μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methyl cyclohexane				µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl tert-Butyl Ether (MTBE)				μg/L	1 Ü	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	2,400	12,000	4.6	μg/L	1 UJ	1 UJ	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U				
Styrene				µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene (PCE)	140	700	0.69	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	330	1,700	1,300	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene (TCE)	450	2,300	2.5	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane (Freon 11)				μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl chloride			0.025	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Specialty Compounds												-		-			
2,3',4-Trihydroxydiphenyl				μg/L	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Benzenesulfonic acid	1,200,000	2.000.000		μg/L	50 U	50 UJ	50 U	50 UJ	50 U	50 UJ	50 U	50 U	12 J	50 U	50 U	50 U	50 U
Formaldehyde	440	2,200	700	μg/L	50 UB	14 J	50 UB	7 J	50 UB	5.5 J	50 UB	50 U					
m-Benzenedisulfonic acid	1,600,000	2,600,000		μg/L	90	100	88	130	81	130	86	1,700 D	2,300	1,300 D	550	1,300 D	890
p-Phenolsulfonic acid	1,400,000	3.500,000		μg/L	50 U	50 U	50 U	50 U	50 U	50 U	50 U	70	270	50 U	73 J	50 U	97
Resorcinol	7.200	28.000	2.700	ua/L	350	50 U	450	50 U	21 J	50 U	50 U	50 UJ	50 U				
Semivolatile Organics	1,200	20,000	2,700	P9'-					000	00.0	000	00.0		00 0	000	00 00	
Phenol		I	10.400	ua/L	0.93 U	NA	0.93 U	NA	0.93 U	NA	0.93 U	NA	0.93 U	NA	0.93 U	NA	0.93 U
Miscellaneous			10,700	_ ⊬g/ ⊏	0.000	1 14/7	0.000	14/5	0.000	14/7	0.000	11/3	0.00 0	14/3	0.000	14/7	0.000
Sulfate	1			mg/L	74	92	75	89	75	93	75	100	84	99	83	94	84
- Canado			1	g/∟	- '7 -	J-2		. 33		J.J		100					

Notes:
Bold results indicate a detected value.

Bold and shaded results indicate a result or MDL greater than the human health criteria established in PA Code Title 25, Chapter 93.8c.

Bold and double underline results indicate a result or MDL is greater than the fish and aquatic life CMC criteria established in PA Code Title 25, Chapter 93.8c.

Bold and single underline results indicate a result or MDL is greater than the fish and aquatic life CCC criteria established in PA Code Title 25, Chapter 93.8c.

- - = no applicable screening criteria available
 [] = duplicate sample
 CCC = Criteria Continuous Concentration
 CMC = Criteria Maximum Concentration

- HHC = Human Health Criteria
 MDL = method detection limit

- mg/L = milligrams per liter
 NA = not analyzed
 PAWQS = Pennsylvania Water Quality Standard
- μg/L = micrograms per liter

- D = Concentration is based on a diluted sample analysis.
- J = Compound present. Reported result may not be accurate or precise.
 U = Compound analyzed but not detected at a level greater than or equal to the MDL.
- UB = Compound considered non-detect at the listed value due to associated blank contamination.
- UJ = The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

Table 2 Summary of Sediment Sample Analytical Results

Surface-Water/Sediment Sampling Report Beazer/INDSPEC Properties Petrolia, Pennsylvania

Location ID:				SED-101	SED-101	SED-101	SED-102	SED-102	SED-102	SED-103	SED-103	SED-103
Date Collected:	LEL	SEL	Units	09/04/14	12/03/14	01/29/15	09/04/14	12/03/14	01/29/15	09/04/14	12/03/14	01/29/15
Volatile Organics	LLL	ULL	Units	03/04/14	12/03/14	01/23/13	03/04/14	12/03/14	01/23/13	03/04/14	12/03/14	01/23/13
Ethyl ether	NS	NS	μg/kg	0.66 J [5.7 U]	11 [13]	NA	1.6 J	6.8 U	NA	40	8.1	NA
1,1,1-Trichloroethane	30.2 ^c	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
1,1,2,2-Tetrachloroethane	1,360°	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 UJ	NA	6.5 U	5.8 U	NA
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	NS	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
1,1,2-Trichloroethane	1,240°	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
1,1-Dichloroethane	0.575 ^d	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
1,1-Dichloroethene	31°	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
1,2,4-Trichlorobenzene	2,100°	NS	µg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 UJ	6.8 UJ	NA	6.5 U	5.8 U	NA
1,2-Dibromo-3-chloropropane	NS	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 UJ	6.8 U	NA	6.5 U	5.8 U	NA
1,2-Dibromoethane	NS	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
1,2-Dichlorobenzene	18,900 ^g	NS	μg/kg	5.5 U [5.7 U]	1.3 J [2.1 J]	NA	7.4 UJ	3 J	NA	6.5 U	5.8 U	NA
1,2-Dichloroethane	260 ^d	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
1,2-Dichloroethene (cis) (DCE)	NS	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
1,2-Dichloroethene (trans)	1,050 ^c	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
1,2-Dichloropropane	333 ^d	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
1,3-Dichlorobenzene	4,430°	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 UJ	6.8 U	NA	6.5 U	5.8 U	NA
1,3-Dichloropropene (cis)	NS	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
1,3-Dichloropropene (trans)	NS	NS	μg/kg	5.5 U [5.7 U]	6 UJ [6.3 UJ]	NA	7.4 U	6.8 UJ	NA NA	6.5 U	5.8 UJ	NA
1,4-Dichlorobenzene	18,900 ^g	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 UJ	6.8 U	NA	6.5 U	5.8 U	NA
2-Butanone (Methyl ethyl ketone)	42.4 ^d	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
4-Methyl-2-pentanone (MIBK)	25.1 ^d	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
Acetone (2-propanone)	9.9 ^d	NS	μg/kg	22 U [23 U]	24 U [25 U]	NA	29 UB	27 U	NA	26 U	23 U	NA
Benzene	141.57 ^d	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	17 J	NA	6.5 U	5.8 U	NA
Bromodichloromethane	NS of t	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
Bromoform	654 ^c	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 UJ	NA	6.5 U	5.8 U	NA
Bromomethane (Methyl bromide)	1.37 ^d	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA NA	6.5 U	5.8 U	NA
Carbon disulfide	0.851°	NS	μg/kg	5.5 U [5.7 U]	6 U [1.5 J]	NA	7.4 U	6.8 U	NA	6.5 U	1.4 J	NA
Carbon tetrachloride	64.2°	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA NA	6.5 U	5.8 U	NA
Chlorobenzene	13,800 ^g	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U 7.4 U	2.3 J	NA NA	6.5 U	5.8 U 5.8 U	NA NA
Chloroethane	NS 121 ^d	NS NS	μg/kg	5.5 U [5.7 U] 5.5 U [5.7 U]	6 U [6.3 U] 6 U [6.3 U]	NA NA	7.4 U	6.8 U 6.8 U	NA NA	6.5 U 6.5 U	5.8 U	NA NA
Chloroform Chloromethane (Methyl chloride)	NS	NS NS	μg/kg μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA NA	7.4 U	6.8 U	NA NA	6.5 U	5.8 U	NA NA
Cyclohexane	NS	NS	μg/kg μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA NA	37 J	11 J	NA NA	6.5 U	5.8 U	NA NA
Dibromochloromethane	1.114 ^d	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA NA	7.4 U	6.8 U	NA NA	6.5 U	5.8 U	NA.
Dichlorodifluoromethane (Freon 12)	NS	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA NA	7.4 U	6.8 U	NA NA	6.5 U	5.8 U	NA NA
Ethylbenzene	1,100°	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	2.2 J	3.1 J	NA	6.5 U	5.8 U	NA
Isopropylbenzene (Cumene)	86°	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	2.8 J	2 J	NA	6.5 U	5.8 U	NA
Methyl Acetate	NS	NS	μg/kg	5.5 U [5.7 U]	6 UJ [6.3 UJ]	NA	7.4 U	6.8 UJ	NA	6.5 U	5.8 UJ	NA
Methyl Butyl Ketone (2-Hexanone)	58.2 ^d	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
Methyl cyclohexane	NS	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	100	48 J	NA	6.5 U	5.8 U	NA
Methyl tert-Butyl Ether (MTBE)	NS	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
Methylene chloride	159 ^d	NS	μg/kg	5.5 U [5.7 U]	6 UB [6.3 UB]	NA	7.4 U	6.8 UB	NA	6.5 U	6.1 UB	NA
Styrene	559°	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
Tetrachloroethene (PCE)	468°	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
Toluene	1,220 ^d	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
Trichloroethene (TCE)	96.9°	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
Trichlorofluoromethane (Freon 11)	NS	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
Vinyl chloride	202 ^d	NS	μg/kg	5.5 U [5.7 U]	6 U [6.3 U]	NA	7.4 U	6.8 U	NA	6.5 U	5.8 U	NA
Specialty Compounds	110			0.701	D (D)							
2,3',4-Trihydroxydiphenyl	NS	NS	μg/kg	R [R]	R [R]	NA NA	8 33 J	20 UJ	NA NA	20 UJ	R R	NA NA
Benzenesulfonic acid Formaldehyde	NS NS	NS NS	μg/kg μg/kg	20 UJ [19 UJ] 390 [690]	850 DJ [870 D] 1.100 J [560 J]	NA NA	33 J 130	20 UJ 1.100 J	NA NA	20 UJ 510	270	NA NA
m-Benzenedisulfonic acid	NS NS	NS NS	μg/kg μg/kg	140 J [160 J]	85.000 D [85.000 D]	NA NA	5.000 D	1,100 J 400	NA NA	340 J	270 R	NA NA
p-Phenolsulfonic acid	NS	NS	μg/kg μg/kg	R [R]	7,200 DJ [7,400 D]	NA NA	20 U	20 UJ	NA NA	20 U	R	NA NA
Resorcinol	NS	NS	μg/kg	R [R]	R [390 UJ]	NA	R	R	NA NA	R	R	NA.
Semivolatile Organics				1.4								
Phenol	420°	NS	μg/kg	NA	NA	42 U	NA	NA	170 UJ [820 UJ]	NA	NA	10 J
Miscellaneous						•						
Percent Moisture	NS	NS	%	8.8 [12]	16 [20]	21	32	27	20 [34]	23	14	21
Percent Solids	NS	NS	%	91 [88]	84 [80]	79	68	73	80 [66]	77	86	79
Sulfate	NS	NS	mg/kg	59 J [120 J]	1,600 [1,500]	NA	2,500	140	NA	68	290	NA

Rold and shaded results indicates the value is greater than the LEL criteria (as defined by the hierarchy below. Bold results indicate a detected value.

[] = duplicate sample NA = not analyzed

% = percent AOI = area of interest NS = no standard currently available NOAA = National Oceanic and Atmospheric Administration

BTAG = Biological Technical Assistance Group ERL = effects range low PAH = polycyclic aromatic hydrocarbon SEL = severe effect level TOC = total organic carbon

µg/kg = micrograms per kilogram

USEPA = United States Environmental Protection Agency LEL = low effect level MDL = method detection limit

mg/kg = milligrams per kilogram

The hierarchy for selecting the SEL:

- Calculated Site-Specific SEL.
 Ontario Sediment SEL (if no Site-Specific SEL is available).

- The hierarchy for selecting the LEL:
 c. USEPA Region 3 BTAG Freshwater Sediment Screening Values; Criteria for PAHs calculated using AOI-specific TOC values. d.
- SD EPA R5 Sediment Benchmark (if no USEPA Region 3 BTAG is available). Ontario LEL (if no SD EPA R5 Benchmark is available).
- NOAA ERL Sediment Benchmark (if no Ontario Sediment LEL is available).
- Narcosis-based equilibrium-partitioning sediment benchmark calculated using AOI-specific TOC values per USEPA 2008.

Data Qualifiers:

- D = Concentration is based on a diluted sample analysis.
- J = Compound present. Reported result may not be accurate or precise.
 U = Compound analyzed but not detected at a level greater than or equal to the MDL.
- R = Result rejected during validation.
- UB = Compound considered non-detect at the listed value due to associated blank contamination.
- UJ = The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 * = Laboratory duplicate analysis was outside control limits.

Table 2-2014-2015 Sediment _v2015-02-26 (2).xlsx Page 1 of 1

Figures



ACT 2 SITE BOUNDARY

BEAZER/INDSPEC PROPERTIES PETROLIA, PENNSYLVANIA

SURFACE-WATER/SEDIMENT SAMPLING REPORT

SITE LOCATION MAP



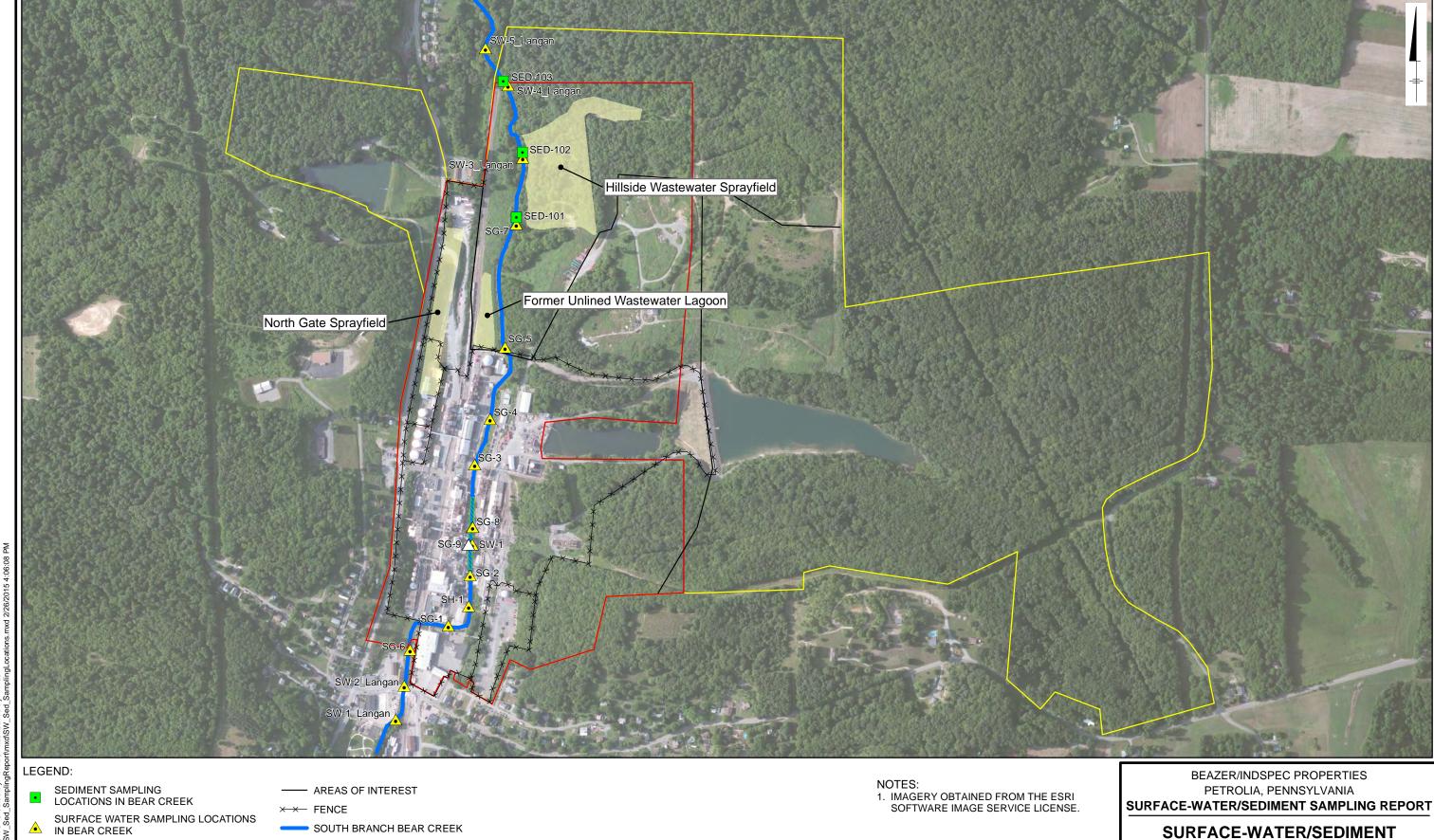
FIGURE

City: SYR Div/Group: SWG Created By: K.IVES Last Saved By: kives Q:Beazer/Petrolia, PA\SW_Sed_SamplingReport/mxd\SiteLocationMap.mxd 2/26/2015 4:21:46 PM

FACILITY SITE BOUNDARY

NOTES:

1. USGS QUADRANGLE MAP IMAGE OBTAINED FROM THE ESRI SOFTWARE IMAGE SERVICE LICENSE.



SAMPLING LOCATIONS

ARCADIS

1,100

GRAPHIC SCALE

City: SYR Div/Group: SWG Created By: K.IVES Last Saved By: kiv

 $\triangle \quad {}^{\text{'HISTORICAL SURFACE WATER SAMPLING}}_{\text{LOCATION (NOT SAMPLED IN 2014)}}$

AREA OF PLANNED CAP REPAIR

ACT 2 SITE BOUNDARY

FACILITY SITE BOUNDARY

Attachment 1
Laboratory Analytical Data Packages, Data Validation Summaries and Data Usability Report





THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pittsburgh 301 Alpha Drive RIDC Park Pittsburgh, PA 15238 Tel: (412)963-7058

TestAmerica Job ID: 180-36441-1

Client Project/Site: INDSPEC, Petrolia PA

For:

ARCADIS U.S. Inc 6041 Wallace Road Extension Suite 300 Wexford, Pennsylvania 15090

Attn: Chris Bonessi

Authorized for release by: 10/9/2014 4:00:12 PM

ronce Bortot

Veronica Bortot, Senior Project Manager (412)963-2435

veronica.bortot@testamericainc.com

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Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: ARCADIS U.S. Inc Project/Site: INDSPEC, Petrolia PA TestAmerica Job ID: 180-36441-1

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Case Narrative

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Job ID: 180-36441-1

Laboratory: TestAmerica Pittsburgh

Narrative

CASE NARRATIVE

Client: ARCADIS U.S. Inc

Project: INDSPEC, Petrolia PA

Report Number: 180-36441-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 9/6/2014 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.1° C and 3.2° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples SW-5 LANGAN (180-36441-1), SW-4 LANGAN (180-36441-3), SW-3 LANGAN (180-36441-5), SG-7 (180-36441-7), SG-5 (180-36441-8), SG-6 (180-36441-9), SW-2 LANGAN (180-36441-10), SW-1 LANGAN (180-36441-11), SG-4 (180-36441-13), SG-3 (180-36441-14), SG-8 (180-36441-15), SW-1 (180-36441-16), SG-2 (180-36441-17), SH-1 (180-36441-18), SG-1 (180-36441-19), EB090514 (180-36441-20), DUP090514 (180-36441-21) and TRIP BLANKS (180-36441-22) were analyzed for 8260C in accordance with 8260. The samples were analyzed on 09/14/2014, 09/15/2014 and 09/16/2014.

Samples SED-103 (180-36441-2), SED-102 (180-36441-4), SED-101 (180-36441-6) and DUP090414 (180-36441-12) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260. The samples were analyzed on 09/08/2014.

The laboratory control sample (LCS) for batch 117276 recovered outside control limits for the following analytes: Chloroethane, Bromomethane, and Carbon Tetrachloride. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Internal standard (ISTD) response for TBA-d9 for the following sample(s) was outside acceptance criteria: SED-102 (180-36441-4), SED-102 (180-36441-4 MSD), SED-103 (180-36441-2). This ISTD does not correspond to any of the requested target compounds; therefore, the data have been reported.

Internal standard responses were outside of acceptance limits for the following sample(s): SED-102 (180-36441-4), SED-102 (180-36441-4 MSD), SED-102 (180-36441-4 MSD). The sample(s) shows evidence of matrix interference. Internal Standard 1,4-Dichlorobenzene-d4 recovered low. Matrix issue is confirmed by analysis of MS/MSD which has concurring results.

1,2,4-Trichlorobenzene failed the recovery criteria low for the MS of sample SED-102MS (180-36441-4) in batch 180-117276. Several analytes failed the recovery criteria high.

Several analytes failed the recovery criteria high for the MSD of sample SED-102MSD (180-36441-4) in batch 180-117276

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Case Narrative

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Job ID: 180-36441-1 (Continued)

Laboratory: TestAmerica Pittsburgh (Continued)

ANIONS

Samples SW-5 LANGAN (180-36441-1), SW-4 LANGAN (180-36441-3), SW-3 LANGAN (180-36441-5), SG-7 (180-36441-7), SG-5 (180-36441-8), SG-6 (180-36441-9), SW-2 LANGAN (180-36441-10), SW-1 LANGAN (180-36441-11), SG-4 (180-36441-13), SG-3 (180-36441-14), SG-8 (180-36441-15), SW-1 (180-36441-16), SG-2 (180-36441-17), SH-1 (180-36441-18), SG-1 (180-36441-19), EB090514 (180-36441-20) and DUP090514 (180-36441-21) were analyzed for 300 in accordance with 300. The samples were analyzed on 09/17/2014.

Samples SW-5 LANGAN (1)[5X], SW-4 LANGAN (3)[5X], SW-3 LANGAN (5)[5X], SG-7 (7)[5X], SG-5 (8)[5X], SG-6 (9)[5X], SW-2 LANGAN (10) [5X], SW-1 LANGAN (11)[5X], SG-4 (13)[5X], SG-3 (14)[5X], SG-8 (15)[5X], SW-1 (16)[5X], SG-2 (17)[5X], SH-1 (18)[5X], SG-1 (19)[5X] and DUP090514 (21)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following client QC samples (orig/MS/MSD) had heterogenous sample matrices, which could potentially lead to failing percent recoveries and rpd.

SED-102 (180-36441-4), SED-102 (180-36441-4 MS), SED-102 (180-36441-4 MSD)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

FORMALDEHYDE

Samples SG-4 (180-36441-13), SG-3 (180-36441-14), SG-8 (180-36441-15), SW-1 (180-36441-16), SG-2 (180-36441-17), SH-1 (180-36441-18), SG-1 (180-36441-19), EB090514 (180-36441-20) and DUP090514 (180-36441-21) were analyzed for formaldehyde in accordance with EPA SW-846 Method 8315A. The samples were prepared on 09/07/2014 and analyzed on 09/09/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page

SULFONIC ACIDS

Samples SW-5 LANGAN (180-36441-1), SW-4 LANGAN (180-36441-3), SW-3 LANGAN (180-36441-5), SG-7 (180-36441-7), SG-5 (180-36441-8), SG-6 (180-36441-9), SW-2 LANGAN (180-36441-10), SW-1 LANGAN (180-36441-11), SG-4 (180-36441-13), SG-3 (180-36441-14), SG-8 (180-36441-15), SW-1 (180-36441-16), SG-2 (180-36441-17), SH-1 (180-36441-18), SG-1 (180-36441-19), EB090514 (180-36441-20) and DUP090514 (180-36441-21) were analyzed for Sulfonic Acids in accordance with Sulfonic Acids LCMS. The samples were prepared on 09/08/2014 and analyzed on 09/09/2014, 09/10/2014, 09/11/2014 and 09/12/2014.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following samples associated with batch 76950 were above control limits for 2,3',4-Trihydroxydiphenyl: SED-102 (180-36441-3 MS), SED-102 (180-36441-5 MS), SED-102 (180-36441-7 MS), SED-102 (180-36441-8 MS). The associated laboratory control sample (LCS) recovery met acceptance criteria. Matrix interference is suspected.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following samples associated with batch 76950 were outside control limits for 2,3',4-Trihydroxydiphenyl and Benzensulfonic Acid: SED-102 (180-36441-9 MS), SED-102 (180-36441-10 MS), SED-102 (180-36441-11 MS). The associated laboratory control sample (LCS) recovery met acceptance criteria.

The low-level laboratory control sample (LLCS) associated with batch 76937 recovered below control limits for Benzenesulfonic Acid. It is suspected that the preparation/filtration affected the recovery for this analyte. The mid-level LCS passes; therefore the data have been reported.

SED-102 (LLCS 200-76937/2-A)

Due to the high concentration of m-Benzenedisulfonic Acid, the matrix spike / matrix spike duplicate (MS/MSD) for batch 76937 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Due to the high concentration of m-Benzenedisulfonic Acid, the matrix spike/matrix spike duplicate (MS/MSD) for batch 76950 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

The matrix spike (MS) recoveries for the following sample associated with batch 76937 were outside control limits for 2,3',4-Trihydroxydiphenyl, Benzenesulfonic Acid, m-Benzenedisulfonic Acid, and Resorcinol: SED-102 (180-36441-2 MS). The associated laboratory control sample (LCS) recovery met acceptance criteria.

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Case Narrative

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Job ID: 180-36441-1 (Continued)

Laboratory: TestAmerica Pittsburgh (Continued)

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following sample associated with batch 76937 were outside control limits for 2,3'4-Trihydroxydiphenyl, Benzenesulfonic Acid, Resorcinol, and p-Phenolsulfonic Acid: SED-102 (180-36441-4 MSD). The associated laboratory control sample (LCS) recovery met acceptance criteria.

The matrix spike (MS) recoveries for the following sample associated with batch 76937 were outside control limits: SED-102 (180-36441-6 MS), SED-102 (180-36441-12 MS). The associated laboratory control sample (LCS) recovery met acceptance criteria.

The matrix spike (MS) recoveries for the following sample associated with batch76950 were outside control limits for 2,3',4-Trihydroxydiphenyl: SED-102 (180-36441-19 MS), SED-102 (180-36441-21 MS). The associated laboratory control sample (LCS) recovery met acceptance criteria.

The matrix spike/matrix spike duplicate (MS/MSD) recoveries for the following sample associated with batch 76950 were outside control limits for 2,3',4-Trihydroxydiphenyl: SED-102 (180-36441-13 MS), SED-102 (180-36441-13 MSD), SED-102 (180-36441-14 MS), SED-102 (180-36441-13 MSD). The associated laboratory control sample (LCS) recovery met acceptance criteria.

The matrix spike (MS) recoveries for the following sample associated with batch 76950 were outside control limits for 2,3'4-Trihydroxydiphenyl and Benzenesulfonic Acid: SED-102 (180-36441-16 MS), SED-102 (180-36441-17 MS), SED-102 (180-36441-18 MS). The associated laboratory control sample (LCS) recovery met acceptance criteria.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following samples associated with batch 76950 were outside control limits for 2,3',4-Trihydroxydiphenyl and Resorcinol: SED-102 (180-36441-1 MS). The associated laboratory control sample (LCS) recovery met acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Definitions/Glossary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD exceeds the control limits
*	ISTD response or retention time outside acceptable limits
F1	MS and/or MSD Recovery exceeds the control limits
HPLC/IC	

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F2	MS/MSD RPD exceeds control limits
1.0140	

LCMS

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery exceeds the control limits
*	LCS or LCSD exceeds the control limits
E	Result exceeded calibration range.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

These commonly used abbreviations may or may not be present in this report.

Glossary Abbreviation

¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Page 6 of 90

Certification Summary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Laboratory: TestAmerica Pittsburgh

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program		EPA Region	Certification ID	Expiration Date
Pennsylvania	NELAP		3	02-00416	04-30-15
Analysis Method	Prep Method	Matrix	Analyt	te	

Laboratory: TestAmerica Burlington

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Pennsylvania	NELAP	3	68-00489	04-30-15

Laboratory: TestAmerica Tallahassee

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E81005	06-30-15
Georgia	State Program	4		06-30-15
Louisiana	NELAP	6	30663	06-30-15
New Jersey	NELAP	2	FL012	06-30-15
Texas	NELAP	6	T104704459-11-2	03-31-15
USDA	Federal		P330-08-00158	08-05-14 *

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^{*} Certification renewal pending - certification considered valid.

Sample Summary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-36441-1	SW-5 LANGAN	Water	09/04/14 11:25	09/06/14 09:15
180-36441-2	SED-103	Solid	09/04/14 12:20	09/06/14 09:15
180-36441-3	SW-4 LANGAN	Water	09/04/14 12:35	09/06/14 09:15
180-36441-4	SED-102	Solid	09/04/14 13:10	09/06/14 09:15
180-36441-5	SW-3 LANGAN	Water	09/04/14 13:20	09/06/14 09:15
180-36441-6	SED-101	Solid	09/04/14 14:00	09/06/14 09:15
180-36441-7	SG-7	Water	09/04/14 14:30	09/06/14 09:15
180-36441-8	SG-5	Water	09/04/14 15:15	09/06/14 09:15
180-36441-9	SG-6	Water	09/04/14 16:00	09/06/14 09:15
180-36441-10	SW-2 LANGAN	Water	09/04/14 16:15	09/06/14 09:15
180-36441-11	SW-1 LANGAN	Water	09/04/14 16:30	09/06/14 09:15
180-36441-12	DUP090414	Solid	09/04/14 00:00	09/06/14 09:15
180-36441-13	SG-4	Water	09/05/14 09:55	09/06/14 09:15
180-36441-14	SG-3	Water	09/05/14 10:30	09/06/14 09:15
180-36441-15	SG-8	Water	09/05/14 11:00	09/06/14 09:15
180-36441-16	SW-1	Water	09/05/14 11:05	09/06/14 09:15
180-36441-17	SG-2	Water	09/05/14 11:45	09/06/14 09:15
180-36441-18	SH-1	Water	09/05/14 12:15	09/06/14 09:15
80-36441-19	SG-1	Water	09/05/14 12:25	09/06/14 09:15
80-36441-20	EB090514	Water	09/05/14 12:30	09/06/14 09:15
180-36441-21	DUP090514	Water	09/05/14 00:00	09/06/14 09:15
180-36441-22	TRIP BLANKS	Water	09/05/14 00:00	09/06/14 09:1

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Method Summary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT
8260C	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT
300.0	Anions, Ion Chromatography	MCAWW	TAL PIT
3315A	Carbonyl Compounds (HPLC)	SW846	TAL TAL
n-House	Sulfonic Acids by LCMS/MS	TAL-BUR	TAL BUR
2540G	SM 2540G	SM22	TAL PIT

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions. SM22 = SM22

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-BUR = TestAmerica Laboratories, Burlington, Facility Standard Operating Procedure.

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990
TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058
TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994

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1:

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-5 LANGAN

Lab Sample ID: 180-36441-1

Matrix: Water

Date Collected: 09/04/14 11:25 Date Received: 09/06/14 09:15

Client Sample ID: SED-103

Date Collected: 09/04/14 12:20

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	117991	09/14/14 17:45	DLF	TAL PIT
	Instrum	ent ID: CHHP5								
Total/NA	Analysis	300.0		5	1 mL		118382	09/17/14 17:26	CMR	TAL PIT
	Instrum	ent ID: CHIC25								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		10	4 mL	4 mL	77000	09/09/14 19:36	CAV	TAL BUR
	Instrum	ent ID: LC3062B								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		5	4 mL	4 mL	77000	09/09/14 22:08	CAV	TAL BUR
	Instrum	ent ID: LC3062B								

Lab Sample ID: 180-36441-2

Matrix: Solid

ate Received	: 09/06/14 09:1	5							Percent	Solids: 76.
-	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.0003 g	5 mL	117277	09/08/14 04:18	KLG	TAL PIT
Total/NA	Analysis	8260B		1	5.0003 g	5 mL	117276	09/08/14 07:08	KLG	TAL PIT
	Instrume	ent ID: CHHP3								
Soluble	Leach	DI Leach			010.0932 g	100 mL	118001	09/14/14 12:11	CMR	TAL PIT
Soluble	Analysis	300.0		1	1 mL		117995	09/14/14 16:47	CMR	TAL PIT
	Instrume	ent ID: CHIC25								
Total/NA	Prep	In House			10.11 g	20 mL	76937	09/08/14 13:30	MMS	TAL BUR
Total/NA	Analysis	In-House		1	10.11 g	20 mL	77003	09/11/14 08:47	CAV	TAL BUR
	Instrume	ent ID: LC3062B								
Total/NA	Analysis	2540G		1			117578	09/10/14 09:37	AB1	TAL PIT
	Instrume	ent ID: NOEQUIP								

Client Sample ID: SW-4 LANGAN

Date Collected: 09/04/14 12:35

Date Received: 09/06/14 09:15

Lab Sample ID:	180-36441-3

Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	117991	09/14/14 18:09	DLF	TAL PIT
	Instrume	ent ID: CHHP5								
Total/NA	Analysis	300.0		5	1 mL		118382	09/17/14 17:41	CMR	TAL PIT
	Instrume	ent ID: CHIC25								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		10	4 mL	4 mL	77000	09/09/14 21:06	CAV	TAL BUR
	Instrume	ent ID: LC3062B								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		5	4 mL	4 mL	77000	09/09/14 23:06	CAV	TAL BUR
	Instrume	ent ID: LC3062B								

TestAmerica Pittsburgh

TestAmerica Job ID: 180-36441-1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-102

Date Collected: 09/04/14 13:10

Date Received: 09/06/14 09:15

Lab Sample ID: 180-36441-4

Matrix: Solid

Percent Solids: 68.0

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.0002 g	5 mL	117277	09/08/14 04:18	KLG	TAL PIT
Total/NA	Analysis	8260B		1	5.0002 g	5 mL	117276	09/08/14 07:30	KLG	TAL PIT
	Instrum	ent ID: CHHP3								
Soluble	Leach	DI Leach			009.9769 g	100 mL	118001	09/14/14 12:11	CMR	TAL PIT
Soluble	Analysis	300.0		5	1 mL		118382	09/17/14 15:21	CMR	TAL PIT
	Instrum	ent ID: CHIC25								
Total/NA	Prep	In House			10.16 g	20 mL	76937	09/08/14 13:30	MMS	TAL BUR
Total/NA	Analysis	In-House		20	10.16 g	20 mL	77002	09/11/14 01:38	CAV	TAL BUR
	Instrum	ent ID: LC3062B								
Total/NA	Prep	In House			10.16 g	20 mL	76937	09/08/14 13:30	MMS	TAL BUR
Total/NA	Analysis	In-House		1	10.16 g	20 mL	77003	09/11/14 11:46	CAV	TAL BUR
	Instrum	ent ID: LC3062B								
Total/NA	Analysis	2540G		1			117578	09/10/14 09:37	AB1	TAL PIT
	Instrum	ent ID: NOEQUIP								

Client Sample ID: SW-3 LANGAN

Date Collected: 09/04/14 13:20 Date Received: 09/06/14 09:15 Lab Sample ID: 180-36441-5

Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrume	8260C ent ID: CHHP6		1	5 mL	5 mL	118072	09/15/14 16:04	DLF	TAL PIT
Total/NA	Analysis Instrume	300.0 ent ID: CHIC25		5	1 mL		118382	09/17/14 17:57	CMR	TAL PIT
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis Instrume	In-House ent ID: LC3062B		15	4 mL	4 mL	77000	09/09/14 17:37	CAV	TAL BUR
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis Instrume	In-House ent ID: LC3062B		5	4 mL	4 mL	77000	09/10/14 00:36	CAV	TAL BUR

Client Sample ID: SED-101 Lab Sample ID: 180-36441-6

Date Collected: 09/04/14 14:00 **Matrix: Solid** Date Received: 09/06/14 09:15 Percent Solids: 91.2

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.0008 g	5 mL	117277	09/08/14 04:18	KLG	TAL PIT
Total/NA	Analysis Instrum	8260B ent ID: CHHP3		1	5.0008 g	5 mL	117276	09/08/14 09:45	KLG	TAL PIT
Soluble	Leach	DI Leach			010.1260 g	100 mL	118001	09/14/14 12:11	CMR	TAL PIT
Soluble	Analysis Instrum	300.0 ent ID: CHIC25		1	1 mL		117995	09/14/14 17:49	CMR	TAL PIT
Total/NA	Prep	In House			10.25 g	20 mL	76937	09/08/14 13:30	MMS	TAL BUR

TestAmerica Pittsburgh

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Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-101 Date Collected: 09/04/14 14:00

Lab Sample ID: 180-36441-6

Matrix: Solid

Date Received: 09/06/14 09:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	In-House		1	10.25 g	20 mL	77003	09/11/14 12:46	CAV	TAL BUR
	Instrum	ent ID: LC3062B								
Total/NA	Analysis	2540G		1			117578	09/10/14 09:37	AB1	TAL PIT
	Instrum	ent ID: NOEQUIP								

Lab Sample ID: 180-36441-7

Client Sample ID: SG-7 Date Collected: 09/04/14 14:30

Matrix: Water

Date Received: 09/06/14 09:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	118072	09/15/14 16:28	DLF	TAL PIT
	Instrume	ent ID: CHHP6								
Total/NA	Analysis	300.0		5	1 mL		118382	09/17/14 18:12	CMR	TAL PIT
	Instrume	ent ID: CHIC25								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		15	4 mL	4 mL	77000	09/09/14 18:37	CAV	TAL BUR
	Instrume	ent ID: LC3062B								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		5	4 mL	4 mL	77000	09/10/14 01:37	CAV	TAL BUR
	Instrume	ent ID: LC3062B								

Client Sample ID: SG-5 Lab Sample ID: 180-36441-8

Date Collected: 09/04/14 15:15 Date Received: 09/06/14 09:15 **Matrix: Water**

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	118072	09/15/14 16:52	DLF	TAL PIT
	Instrume	ent ID: CHHP6								
Total/NA	Analysis	300.0		5	1 mL		118382	09/17/14 18:59	CMR	TAL PIT
	Instrume	ent ID: CHIC25								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		20	4 mL	4 mL	77000	09/09/14 16:07	CAV	TAL BUR
	Instrume	ent ID: LC3062B								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		5	4 mL	4 mL	77000	09/10/14 02:36	CAV	TAL BUR
	Instrume	ent ID: LC3062B								

Client Sample ID: SG-6 Lab Sample ID: 180-36441-9

Date Collected: 09/04/14 16:00 Date Received: 09/06/14 09:15 **Matrix: Water**

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	117991	09/14/14 20:10	DLF	TAL PIT

TestAmerica Pittsburgh

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-6

Lab Sample ID: 180-36441-9

Matrix: Water

Date Collected: 09/04/14 16:00 Date Received: 09/06/14 09:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	117991	09/14/14 20:10	DLF	TAL PIT
	Instrum	ent ID: CHHP5								
Total/NA	Analysis	300.0		5	1 mL		118382	09/17/14 19:46	CMR	TAL PIT
	Instrum	ent ID: CHIC25								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		5	4 mL	4 mL	77000	09/10/14 04:05	CAV	TAL BUR
	Instrum	ent ID: LC3062B								

Client Sample ID: SW-2 LANGAN

Lab Sample ID: 180-36441-10

Matrix: Water

Date Collected: 09/04/14 16:15 Date Received: 09/06/14 09:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	118072	09/15/14 17:15	DLF	TAL PIT
	Instrum	ent ID: CHHP6								
Total/NA	Analysis	300.0		5	1 mL		118382	09/17/14 20:01	CMR	TAL PIT
	Instrum	ent ID: CHIC25								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		5	4 mL	4 mL	77000	09/10/14 05:05	CAV	TAL BUR

Client Sample ID: SW-1 LANGAN

Instrument ID: LC3062B

Lab Sample ID: 180-36441-11

Matrix: Water

Date Collected: 09/04/14 16:30 Date Received: 09/06/14 09:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	118072	09/15/14 17:40	DLF	TAL PIT
	Instrume	ent ID: CHHP6								
Total/NA	Analysis	300.0		5	1 mL		118382	09/17/14 20:17	CMR	TAL PIT
	Instrume	ent ID: CHIC25								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		5	4 mL	4 mL	77000	09/10/14 06:05	CAV	TAL BUR
	Instrume	ent ID: LC3062B								

Client Sample ID: DUP090414

Lab Sample ID: 180-36441-12

Date Collected: 09/04/14 00:00 Date Received: 09/06/14 09:15

Matrix: Solid Percent Solids: 88.3

Dil Initial Batch Batch Final Batch Prepared Prep Type Method Amount Amount Number or Analyzed Туре Run Factor Analyst Lab Prep Total/NA 5030B 117277 09/08/14 04:18 KLG TAL PIT 5.0006 g 5 mL Total/NA Analysis 8260B 5.0006 g 5 mL 117276 09/08/14 09:23 KLG TAL PIT Instrument ID: CHHP3 Soluble Leach DI Leach 009.9873 g 100 mL 118001 09/14/14 12:11 CMR TAL PIT

TestAmerica Pittsburgh

TestAmerica Job ID: 180-36441-1

Client: ARCADIS U.S. Inc

Total/NA

Total/NA

Total/NA

Total/NA

Prep

Prep

Analysis

Analysis

In House

In-House

In House

In-House

Instrument ID: LC3062B

Instrument ID: LC3062B

Project/Site: INDSPEC, Petrolia PA

Date Received: 09/06/14 09:15 Percent Solids: 88.3

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Soluble	Analysis	300.0		1	1 mL	-	117995	09/14/14 18:05	CMR	TAL PIT
	Instrume	ent ID: CHIC25								
Total/NA	Prep	In House			10.30 g	20 mL	76937	09/08/14 13:30	MMS	TAL BUR
Total/NA	Analysis	In-House		1	10.30 g	20 mL	77003	09/11/14 15:35	CAV	TAL BUR
	Instrume	ent ID: LC3062B								
Total/NA	Analysis	2540G		1			117578	09/10/14 09:37	AB1	TAL PIT
	Instrume	ent ID: NOEQUIP								

Client Sample ID: SG-4 Lab Sample ID: 180-36441-13

Date Collected: 09/05/14 09:55

Date Received: 09/06/14 09:15

Matrix: Water

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Type Method Run Factor Amount Amount Number or Analyzed Analyst Lab Total/NA 8260C 118072 09/15/14 13:14 DLF TAL PIT Analysis 5 mL 5 mL Instrument ID: CHHP6 Total/NA Analysis 300.0 5 1 mL 118382 09/17/14 20:32 CMR **TAL PIT** Instrument ID: CHIC25 Total/NA 8315_W_Prep 100 mL 09/07/14 12:10 TAL TAL Prep 4.0 mL 111453 DNS Total/NA Analysis 8315A 1 100 mL 4.0 mL 111485 09/09/14 13:55 DNS TAL TAL Instrument ID: CHLCJ

4 mL

4 mL

4 mL

4 mL

25

5

4 mL

4 mL

4 mL

4 mL

76950

77003

76950

77108

09/08/14 12:45

09/11/14 05:07

09/08/14 12:45

09/11/14 19:19

CAV

CAV

CAV

CAV

TAL BUR TAL BUR

TAL BUR

TAL BUR

Client Sample ID: SG-3 Lab Sample ID: 180-36441-14

Date Collected: 09/05/14 10:30 Matrix: Water
Date Received: 09/06/14 09:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrum	8260C ent ID: CHHP6		1	5 mL	5 mL	118218	09/16/14 16:07	DLF	TAL PIT
Total/NA	Analysis Instrum	300.0 ent ID: CHIC25		5	1 mL		118382	09/17/14 21:19	CMR	TAL PIT
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	111453	09/07/14 12:10	DNS	TAL TAL
Total/NA	Analysis Instrum	8315A ent ID: CHLCJ		1	100 mL	4.0 mL	111485	09/09/14 14:31	DNS	TAL TAL
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis Instrum	In-House ent ID: LC3062B		20	4 mL	4 mL	77108	09/11/14 17:20	CAV	TAL BUR
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR

TestAmerica Pittsburgh

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10/9/2014

Lab Chronicle

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Lab Sample ID: 180-36441-14

Matrix: Water

Date Collected: 09/05/14 10:30 Date Received: 09/06/14 09:15

Client Sample ID: SG-3

Dil Batch Batch Initial Final Batch Prepared Prep Type Туре Method Run Factor Amount Amount Number or Analyzed Analyst Lab Total/NA Analysis In-House 5 4 mL 4 mL 77108 09/11/14 21:48 CAV TAL BUR Instrument ID: LC3062B

Client Sample ID: SG-8 Lab Sample ID: 180-36441-15

Matrix: Water Date Collected: 09/05/14 11:00

Date Received: 09/06/14 09:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	118218	09/16/14 18:59	DLF	TAL PIT
	Instrume	ent ID: CHHP6								
Total/NA	Analysis	300.0		5	1 mL		118382	09/17/14 21:35	CMR	TAL PIT
	Instrume	ent ID: CHIC25								
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	111453	09/07/14 12:10	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	111485	09/09/14 14:42	DNS	TAL TAL
	Instrume	ent ID: CHLCJ								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUF
Total/NA	Analysis	In-House		10	4 mL	4 mL	77108	09/11/14 18:21	CAV	TAL BUF
	Instrume	ent ID: LC3062B								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUF
Total/NA	Analysis	In-House		5	4 mL	4 mL	77108	09/11/14 22:48	CAV	TAL BUF
	Instrume	ent ID: LC3062B								

Client Sample ID: SW-1 Lab Sample ID: 180-36441-16

Date Collected: 09/05/14 11:05

Date Received: 09/06/14 09:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrume	8260C ent ID: CHHP6		1	5 mL	5 mL	118072	09/15/14 18:28	DLF	TAL PIT
Total/NA	Analysis Instrume	300.0 ent ID: CHIC25		5	1 mL		118382	09/17/14 21:50	CMR	TAL PIT
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	111453	09/07/14 12:10	DNS	TAL TAL
Total/NA	Analysis Instrume	8315A ent ID: CHLCJ		1	100 mL	4.0 mL	111485	09/09/14 14:54	DNS	TAL TAL
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis Instrume	In-House ent ID: LC3062B		5	4 mL	4 mL	77108	09/12/14 00:18	CAV	TAL BUR

TestAmerica Pittsburgh

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Matrix: Water

Project/Site: INDSPEC, Petrolia PA

Date Received: 09/06/14 09:15

Instrument ID: LC3062B

Date Received: 09/06/14 09:15

Client Sample ID: SG-2 Lab Sample ID: 180-36441-17 Date Collected: 09/05/14 11:45

Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	118072	09/15/14 18:52	DLF	TAL PIT
	Instrum	ent ID: CHHP6								
Total/NA	Analysis	300.0		5	1 mL		118382	09/17/14 22:06	CMR	TAL PIT
	Instrum	ent ID: CHIC25								
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	111453	09/07/14 12:10	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	111485	09/09/14 15:06	DNS	TAL TAL
	Instrum	ent ID: CHLCJ								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		5	4 mL	4 mL	77108	09/12/14 01:18	CAV	TAL BUR
	Instrum	ent ID: LC3062B								

Client Sample ID: SH-1 Lab Sample ID: 180-36441-18

Date Collected: 09/05/14 12:15 Matrix: Water Date Received: 09/06/14 09:15

Batch Batch Dil Initial Final Batch Prepared Method Prep Type Type Run Factor Amount Amount Number or Analyzed Analyst Lab Total/NA Analysis 8260C 5 mL 5 mL 118072 09/15/14 19:16 DLF TAL PIT Instrument ID: CHHP6 Total/NA Analysis 300.0 5 118382 09/17/14 22:52 CMR TAL PIT 1 mL Instrument ID: CHIC25 Total/NA Prep 8315_W_Prep 100 mL 4.0 mL 111453 09/07/14 12:10 DNS TAL TAL Total/NA 8315A 100 mL 4.0 mL 111485 09/09/14 15:18 DNS TAL TAL Analysis Instrument ID: CHLCJ Total/NA Prep In House 4 mL 4 mL 76950 09/08/14 12:45 CAV TAL BUR Analysis Total/NA In-House 5 4 mL 4 mL 77108 09/12/14 02:17 CAV TAL BUR

Client Sample ID: SG-1 Lab Sample ID: 180-36441-19

Date Collected: 09/05/14 12:25 Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	118072	09/15/14 20:03	DLF	TAL PIT
	Instrume	ent ID: CHHP6								
Total/NA	Analysis	300.0		5	1 mL		118382	09/17/14 23:08	CMR	TAL PIT
	Instrume	ent ID: CHIC25								
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	111453	09/07/14 12:10	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	111485	09/09/14 15:30	DNS	TAL TAL
	Instrume	ent ID: CHLCJ								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		5	4 mL	4 mL	77192	09/12/14 15:37	CAV	TAL BUR
	Instrume	ent ID: LC3062B								

TestAmerica Pittsburgh

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: EB090514

TestAmerica Job ID: 180-36441-1

Lab Sample ID: 180-36441-20

Lab Sample ID: 180-36441-21

Matrix: Water

Date Collected: 09/05/14 12:30 Date Received: 09/06/14 09:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	118072	09/15/14 20:27	DLF	TAL PIT
	Instrume	ent ID: CHHP6								
Total/NA	Analysis	300.0		1	1 mL		118382	09/17/14 23:24	CMR	TAL PIT
	Instrume	ent ID: CHIC25								
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	111453	09/07/14 12:10	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	111485	09/09/14 15:53	DNS	TAL TAL
	Instrume	ent ID: CHLCJ								
Total/NA	Prep	In House			4 mL	4 mL	76950	09/08/14 12:45	CAV	TAL BUR
Total/NA	Analysis	In-House		5	4 mL	4 mL	77192	09/12/14 16:37	CAV	TAL BUR
	Instrume	ent ID: LC3062B								

Client Sample ID: DUP090514

Da

ate Received	: 09/06/14 09:1 Batch	5 Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	118218	09/16/14 19:23	DLF	TAL PIT
	Instrume	ent ID: CHHP6								
Total/NA	Analysis	300.0		5	1 mL		118382	09/17/14 23:39	CMR	TAL PIT
	Instrume	ent ID: CHIC25								

Total/NA Prep 8315_W_Prep 100 mL 4.0 mL 111453 09/07/14 12:10 DNS TAL TAL Total/NA 100 mL TAL TAL Analysis 8315A 4.0 mL 111485 09/09/14 16:05 DNS Instrument ID: CHLCJ Total/NA Prep In House 4 mL 4 mL 76950 09/08/14 12:45 CAV TAL BUR Total/NA In-House 25 4 mL 4 mL 77003 09/11/14 07:07 CAV TAL BUR Analysis Instrument ID: LC3062B Total/NA 09/08/14 12:45 CAV Prep In House 4 mL 4 mL 76950 TAL BUR Total/NA Analysis In-House 5 4 mL 4 mL 77192 09/12/14 17:36 CAV TAL BUR Instrument ID: LC3062B

Client Sample ID: TRIP BLANKS

Date Collected: 09/05/14 00:00

Date Received: 09/06/14 09:15

Prep Type Total/NA	Batch Type Analysis	Batch Method 8260C	Run	Dil Factor	Initial Amount 5 mL	Final Amount 5 mL	Batch Number 118072	Prepared or Analyzed 09/15/14 13:37	Analyst DLF	Lab TAL PIT
	Instrume	ent ID: CHHP6								

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994

TestAmerica Pittsburgh

Lab Sample ID: 180-36441-22 Matrix: Water

Lab Chronicle

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Analyst References:

Lab: TAL BUR

Batch Type: Prep

CAV = Courtney Vuono

MMS = Maggie Stewart

Batch Type: Analysis

CAV = Courtney Vuono

Lab: TAL PIT

Batch Type: Leach

CMR = Carl Reagle

Batch Type: Prep

KLG = Kathy Gordon

Batch Type: Analysis

AB1 = Ashwin Baikadi

CMR = Carl Reagle

DLF = Donald Ferguson

KLG = Kathy Gordon

Lab: TAL TAL

Batch Type: Prep

DNS = Daniel Smith

Batch Type: Analysis

DNS = Daniel Smith

Client Sample Results

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Lab Sample ID: 180-36441-1

Client Sample ID: SW-5 LANGAN Date Collected: 09/04/

Date Collected: 09/04/14 11:25	Matrix: Water
Date Received: 09/06/14 09:15	

Analyte	Compounds (Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			09/14/14 17:45	
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			09/14/14 17:45	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			09/14/14 17:45	
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			09/14/14 17:45	
1,1-Dichloroethane	ND		1.0		ug/L			09/14/14 17:45	
1,1-Dichloroethene	ND		1.0		ug/L			09/14/14 17:45	
1,2,4-Trichlorobenzene	ND		1.0		ug/L			09/14/14 17:45	
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			09/14/14 17:45	
1,2-Dichlorobenzene	0.91	J	1.0		ug/L			09/14/14 17:45	
1,2-Dichloroethane	ND		1.0		ug/L			09/14/14 17:45	
1,2-Dichloropropane	ND		1.0	0.095				09/14/14 17:45	
1,3-Dichlorobenzene	ND		1.0		ug/L			09/14/14 17:45	
1,4-Dichlorobenzene	ND		1.0		ug/L			09/14/14 17:45	
2-Butanone (MEK)	ND		5.0		ug/L			09/14/14 17:45	
2-Hexanone	ND		5.0		ug/L			09/14/14 17:45	
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			09/14/14 17:45	
Acetone	12		5.0		ug/L			09/14/14 17:45	
Benzene	ND		1.0		ug/L			09/14/14 17:45	
Bromoform	ND		1.0		ug/L ug/L			09/14/14 17:45	
Bromomethane	ND		1.0		ug/L			09/14/14 17:45	
Carbon disulfide	ND				-			09/14/14 17:45	
Carbon tetrachloride	ND		1.0		ug/L			09/14/14 17:45	
			1.0		ug/L				
Chlorodinaryon and have	0.32	J	1.0		ug/L			09/14/14 17:45	
Chlorodibromomethane	ND		1.0		ug/L			09/14/14 17:45	
Chloroethane	ND		1.0		ug/L			09/14/14 17:45	
Chloroform	ND		1.0		ug/L			09/14/14 17:45	
Chloromethane	ND		1.0		ug/L			09/14/14 17:45	
cis-1,2-Dichloroethene	ND		1.0		ug/L			09/14/14 17:45	
cis-1,3-Dichloropropene	ND		1.0		ug/L			09/14/14 17:45	
Cyclohexane	ND		1.0		ug/L			09/14/14 17:45	
Dichlorobromomethane	ND		1.0		ug/L			09/14/14 17:45	
Dichlorodifluoromethane	ND		1.0		ug/L			09/14/14 17:45	
Ethyl ether	7.9		1.0	0.082				09/14/14 17:45	
Ethylbenzene	ND		1.0		ug/L			09/14/14 17:45	
1,2-Dibromoethane	ND		1.0		ug/L			09/14/14 17:45	
Isopropylbenzene	ND		1.0		ug/L			09/14/14 17:45	
Methyl acetate	ND		1.0	0.14	ug/L			09/14/14 17:45	
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			09/14/14 17:45	
Methylcyclohexane	ND		1.0	0.26	ug/L			09/14/14 17:45	
Methylene Chloride	ND		1.0	0.13	ug/L			09/14/14 17:45	
Styrene	ND		1.0	0.097	ug/L			09/14/14 17:45	
Tetrachloroethene	ND		1.0	0.15	ug/L			09/14/14 17:45	
Toluene	ND		1.0	0.15	ug/L			09/14/14 17:45	
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/14/14 17:45	
rans-1,3-Dichloropropene	ND		1.0		ug/L			09/14/14 17:45	
Trichloroethene	ND		1.0		ug/L			09/14/14 17:45	
Trichlorofluoromethane	ND		1.0		ug/L			09/14/14 17:45	
Vinyl chloride	ND		1.0		ug/L			09/14/14 17:45	

TestAmerica Pittsburgh

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-1

TestAmerica Job ID: 180-36441-1

Matrix: Water

Client Sample ID: SW-5 LANGAN

Date Collected: 09/04/14 11:25 Date Received: 09/06/14 09:15

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		64 - 135	_		09/14/14 17:45	1
4-Bromofluorobenzene (Surr)	97		70 - 118			09/14/14 17:45	1
Dibromofluoromethane (Surr)	126		70 - 128			09/14/14 17:45	1
Toluene-d8 (Surr)	108		71 - 118			09/14/14 17:45	1

Method: 300.0 - Anions, Ion Chrom	natography						
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	94	5.0	1.1 mg/L			09/17/14 17:26	5

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	1300		100	100	ug/L		09/08/14 12:45	09/09/14 19:36	10
p-Phenolsulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/09/14 22:08	5
Benzenesulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/09/14 22:08	5
Resorcinol	ND		50	50	ug/L		09/08/14 12:45	09/09/14 22:08	5
2,3',4-Trihydroxydiphenyl	ND		50	50	ug/L		09/08/14 12:45	09/09/14 22:08	5

Client Sample ID: SED-103

Date Collected: 09/04/14 12:20

Lab Sample ID: 180-36441-2

Matrix: Solid

 Date Collected: 09/04/14 12:20
 Matrix: Solid

 Date Received: 09/06/14 09:15
 Percent Solids: 76.6

Method: 8260B - Volatile Organic (Analyte		GC/MS) Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		6.5	0.63	ug/Kg	<u></u>	09/08/14 04:18	09/08/14 07:08	1
1,1,2,2-Tetrachloroethane	ND		6.5	0.94	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		6.5	1.4	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
1,1,2-Trichloroethane	ND		6.5	1.1	ug/Kg		09/08/14 04:18	09/08/14 07:08	1
1,1-Dichloroethane	ND		6.5	0.75	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
1,1-Dichloroethene	ND		6.5	1.1	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
1,2,4-Trichlorobenzene	ND		6.5	1.2	ug/Kg		09/08/14 04:18	09/08/14 07:08	1
1,2-Dibromo-3-Chloropropane	ND		6.5	0.98	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
1,2-Dichlorobenzene	ND		6.5	1.0	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
1,2-Dichloroethane	ND		6.5	0.80	ug/Kg		09/08/14 04:18	09/08/14 07:08	1
1,2-Dichloropropane	ND		6.5	0.71	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
1,3-Dichlorobenzene	ND		6.5	0.86	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
1,4-Dichlorobenzene	ND		6.5	0.83	ug/Kg		09/08/14 04:18	09/08/14 07:08	1
2-Butanone (MEK)	ND		6.5	1.2	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
2-Hexanone	ND		6.5	0.90	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
4-Methyl-2-pentanone (MIBK)	ND		6.5	0.85	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
Acetone	ND		26	6.5	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
Benzene	ND		6.5	0.88	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
Bromoform	ND		6.5	0.58	ug/Kg		09/08/14 04:18	09/08/14 07:08	1
Bromomethane	ND	*	6.5	0.96	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
Carbon disulfide	ND		6.5	0.67	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
Carbon tetrachloride	ND	*	6.5	0.58	ug/Kg		09/08/14 04:18	09/08/14 07:08	1
Chlorobenzene	ND		6.5	0.99	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
Chlorodibromomethane	ND		6.5	0.93	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
Chloroethane	ND	*	6.5	2.0	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
Chloroform	ND		6.5	0.76	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
Chloromethane	ND		6.5	1.1	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
cis-1,2-Dichloroethene	ND		6.5	0.92	ug/Kg		09/08/14 04:18	09/08/14 07:08	1

TestAmerica Pittsburgh

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Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-103

Date Collected: 09/04/14 12:20 Date Received: 09/06/14 09:15

Lab Sample ID: 180-36441-2

Matrix: Solid Percent Solids: 76.6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND		6.5	0.88	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
Cyclohexane	ND		6.5	0.48	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
Dichlorobromomethane	ND		6.5	0.73	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
Dichlorodifluoromethane	ND		6.5	0.87	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
Ethyl ether	40		6.5	0.76	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
Ethylbenzene	ND		6.5	0.84	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
1,2-Dibromoethane	ND		6.5	1.1	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
Isopropylbenzene	ND		6.5	0.89	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
Methyl acetate	ND		6.5	1.2	ug/Kg	₩.	09/08/14 04:18	09/08/14 07:08	1
Methyl tert-butyl ether	ND		6.5	0.98	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
Methylcyclohexane	ND		6.5	0.95	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
Methylene Chloride	ND		6.5	0.88	ug/Kg	\$	09/08/14 04:18	09/08/14 07:08	1
Styrene	ND		6.5	0.92	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
Tetrachloroethene	ND		6.5	0.89	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
Toluene	ND		6.5	0.95	ug/Kg		09/08/14 04:18	09/08/14 07:08	1
trans-1,2-Dichloroethene	ND		6.5	0.78	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
trans-1,3-Dichloropropene	ND		6.5	0.78	ug/Kg	₩	09/08/14 04:18	09/08/14 07:08	1
Trichloroethene	ND		6.5	0.86	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
Trichlorofluoromethane	ND		6.5	1.2	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
Vinyl chloride	ND		6.5	0.61	ug/Kg	₽	09/08/14 04:18	09/08/14 07:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		52 - 124				09/08/14 04:18	09/08/14 07:08	1
4-Bromofluorobenzene (Surr)	86		63 - 120				09/08/14 04:18	09/08/14 07:08	1
Dibromofluoromethane (Surr)	109		68 - 121				09/08/14 04:18	09/08/14 07:08	1
Toluene-d8 (Surr)	111		72 - 127				09/08/14 04:18	09/08/14 07:08	1

Toluene-d8 (Surr)	111		72 - 127				09/08/14 04:18	09/08/14 07:08	1
Method: 300.0 - Anions, Ion Ch	romatography -	Soluble							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	68		13	2.8	mg/Kg	*		09/14/14 16:47	1
Method: In-House - Sulfonic A	cids by LCMS/MS	S							
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m. Danasa alian Kania asid	240		20	20	ua/Ka		00/09/14 12:20	00/11/14 00:47	

metriod: III-riodase - outromic Acids by Lomo/Mo									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	340		20	20	ug/Kg		09/08/14 13:30	09/11/14 08:47	1
p-Phenolsulfonic acid	ND		20	20	ug/Kg		09/08/14 13:30	09/11/14 08:47	1
Benzenesulfonic acid	ND	*	20	20	ug/Kg		09/08/14 13:30	09/11/14 08:47	1
Resorcinol	ND		20	20	ug/Kg		09/08/14 13:30	09/11/14 08:47	1
2,3',4-Trihydroxydiphenyl	ND		59	59	ug/Kg		09/08/14 13:30	09/11/14 08:47	1

General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	23		0.10	0.10	%			09/10/14 09:37	1
Percent Solids	77		0.10	0.10	%			09/10/14 09:37	1

Client Sample ID: SW-4 LANGAN Lab Sample ID: 180-36441-3

Date Collected: 09/04/14 12:35 Matrix: Water Date Received: 09/06/14 09:15

Method: 8260C - Volatile Organic Compounds (GC/MS)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			09/14/14 18:09	1

TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-3

TestAmerica Job ID: 180-36441-1

Client Sample ID: SW-4 LANGAN

Date Collected: 09/04/14 12:35 Date Received: 09/06/14 09:15 Matrix: Water

Method: 8260C - Volatile Organi Analyte		Qualifier	RL.	MDL	Unit	D Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		1.0	0.20			09/14/14 18:09	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32			09/14/14 18:09	1
1,1,2-Trichloroethane	ND		1.0	0.20			09/14/14 18:09	1
1,1-Dichloroethane	ND		1.0	0.12			09/14/14 18:09	. 1
1,1-Dichloroethene	ND		1.0	0.30			09/14/14 18:09	. 1
1,2,4-Trichlorobenzene	ND		1.0	0.27			09/14/14 18:09	 1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	-		09/14/14 18:09	. 1
1,2-Dichlorobenzene	0.89	1	1.0	0.15	•		09/14/14 18:09	. 1
1,2-Dichloroethane	ND		1.0	0.21			09/14/14 18:09	
1,2-Dichloropropane	ND		1.0	0.095	_		09/14/14 18:09	1
1,3-Dichlorobenzene	ND		1.0	0.11	_		09/14/14 18:09	1
1,4-Dichlorobenzene	ND		1.0	0.11			09/14/14 18:09	1
2-Butanone (MEK)	ND		5.0		_		09/14/14 18:09	1
2-Hexanone	ND ND		5.0	0.55 0.16	-		09/14/14 18:09	1
4-Methyl-2-pentanone (MIBK)	ND ND			0.10			09/14/14 18:09	י 1
* ' '			5.0				09/14/14 18:09	
Acetone	16 ND		5.0		ug/L			1
Benzene	ND		1.0	0.11			09/14/14 18:09	1
Bromoform	ND		1.0	0.19			09/14/14 18:09	1
Bromomethane	ND		1.0	0.31	-		09/14/14 18:09	1
Carbon disulfide	ND		1.0	0.21			09/14/14 18:09	
Carbon tetrachloride	ND		1.0	0.14	-		09/14/14 18:09	1
Chlorobenzene	0.32	J	1.0	0.14	_		09/14/14 18:09	1
Chlorodibromomethane	ND		1.0	0.14			09/14/14 18:09	1
Chloroethane	ND		1.0	0.21	_		09/14/14 18:09	1
Chloroform	ND		1.0	0.17	_		09/14/14 18:09	1
Chloromethane	ND		1.0	0.28			09/14/14 18:09	1
cis-1,2-Dichloroethene	ND		1.0	0.24	_		09/14/14 18:09	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L		09/14/14 18:09	1
Cyclohexane	ND		1.0	0.25	ug/L		09/14/14 18:09	1
Dichlorobromomethane	ND		1.0	0.13	ug/L		09/14/14 18:09	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L		09/14/14 18:09	1
Ethyl ether	6.6		1.0	0.082	ug/L		09/14/14 18:09	1
Ethylbenzene	ND		1.0	0.23	ug/L		09/14/14 18:09	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L		09/14/14 18:09	1
Isopropylbenzene	ND		1.0	0.16	ug/L		09/14/14 18:09	1
Methyl acetate	ND		1.0	0.14	ug/L		09/14/14 18:09	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L		09/14/14 18:09	1
Methylcyclohexane	ND		1.0	0.26	ug/L		09/14/14 18:09	1
Methylene Chloride	ND		1.0	0.13	ug/L		09/14/14 18:09	1
Styrene	ND		1.0	0.097	ug/L		09/14/14 18:09	1
Tetrachloroethene	ND		1.0	0.15	ug/L		09/14/14 18:09	1
Toluene	ND		1.0	0.15	ug/L		09/14/14 18:09	1
trans-1,2-Dichloroethene	ND		1.0		ug/L		09/14/14 18:09	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L		09/14/14 18:09	1
Trichloroethene	ND		1.0	0.14	ug/L		09/14/14 18:09	1
Trichlorofluoromethane	ND		1.0		ug/L		09/14/14 18:09	1
Vinyl chloride	ND		1.0		ug/L		09/14/14 18:09	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		64 - 135			-	09/14/14 18:09	1

TestAmerica Pittsburgh

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10/9/2014

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-3

TestAmerica Job ID: 180-36441-1

. Matrix: Water

Client Sample ID: SW-4 LANGAN

Date Collected: 09/04/14 12:35 Date Received: 09/06/14 09:15

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

	Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
	4-Bromofluorobenzene (Surr)	98		70 - 118		09/14/14 18:09	1
	Dibromofluoromethane (Surr)	128		70 - 128		09/14/14 18:09	1
İ	Toluene-d8 (Surr)	112		71 - 118		09/14/14 18:09	1

Method: 300.0 - Anions, Ion Chroi	natography						
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	99	5.0	1.1 mg/L			09/17/14 17:41	5

Analyte	Result Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	1300	100	100	ug/L		09/08/14 12:45	09/09/14 21:06	10
p-PhenoIsulfonic acid	ND	50	50	ug/L		09/08/14 12:45	09/09/14 23:06	5
Benzenesulfonic acid	ND	50	50	ug/L		09/08/14 12:45	09/09/14 23:06	5
Resorcinol	ND	50	50	ug/L		09/08/14 12:45	09/09/14 23:06	5
2,3',4-Trihydroxydiphenyl	ND	50	50	ug/L		09/08/14 12:45	09/09/14 23:06	5

Client Sample ID: SED-102

Lab Sample ID: 180-36441-4

Pate Collected: 09/04/44 13:10

Date Collected: 09/04/14 13:10
Date Received: 09/06/14 09:15

Matrix: Solid
Percent Solids: 68.0

Method: 8260B - Volatile Organic	•	•							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		7.4	0.72	ug/Kg	\$	09/08/14 04:18	09/08/14 07:30	1
1,1,2,2-Tetrachloroethane	ND		7.4	1.1	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		7.4	1.6	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
1,1,2-Trichloroethane	ND		7.4	1.2	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
1,1-Dichloroethane	ND		7.4	0.85	ug/Kg	₩	09/08/14 04:18	09/08/14 07:30	1
1,1-Dichloroethene	ND		7.4	1.2	ug/Kg	₩	09/08/14 04:18	09/08/14 07:30	1
1,2,4-Trichlorobenzene	ND	*	7.4	1.3	ug/Kg	*	09/08/14 04:18	09/08/14 07:30	1
1,2-Dibromo-3-Chloropropane	ND	*	7.4	1.1	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
1,2-Dichlorobenzene	ND	*	7.4	1.2	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
1,2-Dichloroethane	ND		7.4	0.90	ug/Kg	₩	09/08/14 04:18	09/08/14 07:30	
1,2-Dichloropropane	ND		7.4	0.80	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
1,3-Dichlorobenzene	ND	*	7.4	0.97	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
1,4-Dichlorobenzene	ND	*	7.4	0.94	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
2-Butanone (MEK)	ND		7.4	1.3	ug/Kg	₩	09/08/14 04:18	09/08/14 07:30	1
2-Hexanone	ND		7.4	1.0	ug/Kg	₩	09/08/14 04:18	09/08/14 07:30	1
4-Methyl-2-pentanone (MIBK)	ND		7.4	0.96	ug/Kg		09/08/14 04:18	09/08/14 07:30	1
Acetone	19	J	29	7.4	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Benzene	ND		7.4	0.99	ug/Kg	₩	09/08/14 04:18	09/08/14 07:30	1
Bromoform	ND		7.4	0.65	ug/Kg		09/08/14 04:18	09/08/14 07:30	1
Bromomethane	ND	*	7.4	1.1	ug/Kg	₩	09/08/14 04:18	09/08/14 07:30	1
Carbon disulfide	ND		7.4	0.75	ug/Kg	₩	09/08/14 04:18	09/08/14 07:30	1
Carbon tetrachloride	ND	*	7.4	0.66	ug/Kg		09/08/14 04:18	09/08/14 07:30	1
Chlorobenzene	ND		7.4	1.1	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Chlorodibromomethane	ND		7.4	1.0	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Chloroethane	ND	*	7.4	2.3	ug/Kg		09/08/14 04:18	09/08/14 07:30	1
Chloroform	ND		7.4	0.86	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Chloromethane	ND		7.4	1.3	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
cis-1.2-Dichloroethene	ND		7.4	1.0	ug/Kg		09/08/14 04:18	09/08/14 07:30	

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-102

Date Collected: 09/04/14 13:10 Date Received: 09/06/14 09:15 Lab Sample ID: 180-36441-4

Matrix: Solid

Percent Solids: 68.0

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND		7.4	1.0	ug/Kg	₩	09/08/14 04:18	09/08/14 07:30	1
Cyclohexane	37		7.4	0.55	ug/Kg	₩	09/08/14 04:18	09/08/14 07:30	1
Dichlorobromomethane	ND		7.4	0.83	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Dichlorodifluoromethane	ND		7.4	0.98	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Ethyl ether	1.6	J	7.4	0.86	ug/Kg	₩	09/08/14 04:18	09/08/14 07:30	1
Ethylbenzene	2.2	J	7.4	0.95	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
1,2-Dibromoethane	ND		7.4	1.3	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Isopropylbenzene	2.8	J	7.4	1.0	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Methyl acetate	ND		7.4	1.3	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Methyl tert-butyl ether	ND		7.4	1.1	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Methylcyclohexane	100		7.4	1.1	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Methylene Chloride	ND		7.4	0.99	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Styrene	ND		7.4	1.0	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Tetrachloroethene	ND		7.4	1.0	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Toluene	ND		7.4	1.1	ug/Kg	\$	09/08/14 04:18	09/08/14 07:30	1
trans-1,2-Dichloroethene	ND		7.4	0.88	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
trans-1,3-Dichloropropene	ND		7.4	0.88	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Trichloroethene	ND		7.4	0.97	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Trichlorofluoromethane	ND		7.4	1.4	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Vinyl chloride	ND		7.4	0.69	ug/Kg	₽	09/08/14 04:18	09/08/14 07:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		52 - 124				09/08/14 04:18	09/08/14 07:30	1
4-Bromofluorobenzene (Surr)	85		63 - 120				09/08/14 04:18	09/08/14 07:30	1
Dibromofluoromethane (Surr)	110		68 - 121				09/08/14 04:18	09/08/14 07:30	1
Toluene-d8 (Surr)	116		72 - 127				09/08/14 04:18	09/08/14 07:30	1

Toluene-d8 (Surr)	116		/2 - 12/				09/08/14 04:18	09/08/14 07:30	7
— Method: 300.0 - Anions, Ion Chron	natography -	Soluble							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2500		74	16	mg/Kg	-		09/17/14 15:21	5
 Method: In-House - Sulfonic Acids	by LCMS/M	8							
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	5000	·	390	390	ug/Kg		09/08/14 13:30	09/11/14 01:38	20
p-Phenolsulfonic acid	ND		20	20	ug/Kg		09/08/14 13:30	09/11/14 11:46	1
Benzenesulfonic acid	33	*	20	20	ug/Kg		09/08/14 13:30	09/11/14 11:46	1
Resorcinol	ND		20	20	ug/Kg		09/08/14 13:30	09/11/14 11:46	1
2,3',4-Trihydroxydiphenyl	ND		59	59	ug/Kg		09/08/14 13:30	09/11/14 11:46	1
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	32		0.10	0.10	%			09/10/14 09:37	1
Percent Solids	68		0.10	0.10	%			09/10/14 09:37	1

Client Sample ID: SW-3 LANGAN

Date Collected: 09/04/14 13:20

Lab Sample ID: 180-36441-5

Matrix: Water

Date Received: 09/06/14 09:15

Method: 8260C - Volatile Organic C	Compounds ((GC/MS)							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			09/15/14 16:04	1

TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-5

TestAmerica Job ID: 180-36441-1

Matrix: Water

Client Sample ID: SW-3 LANGAN

Date Collected: 09/04/14 13:20 Date Received: 09/06/14 09:15

1,1,2,2-Tetrachloroethane 1,1,2-Trichloro-1,2,2-trifluoroethane 1,1,2-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,2-J-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichloropropane 1,3-Dichloropropane 1,3-Dichlorobenzene 2-Butanone (MEK) 2-Hexanone 4-Methyl-2-pentanone (MIBK) Acetone Benzene Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chloroform Chloroethane Chloroform Chloroethane Chloroform Chloromethane cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorobromomethane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane Isopropylbenzene Methyl acetate Methyl acetate Methyl tert-butyl ether	ND N	J	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	0.32 0.20 0.12 0.30 0.27 0.14 0.15 0.21 0.095 0.11 0.25 0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14 0.21	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04	
1,1,2-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,2,4-Trichlorobenzene 1,2-Dibromo-3-Chloropropane 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 2-Butanone (MEK) 2-Hexanone 4-Methyl-2-pentanone (MIBK) Acetone Benzene Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chloroethane Chloroethane Chloroethane Chloromethane Cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorodifluoromethane Dichlorodifluoromethane Cichlorodifluoromethane Dichlorodifluoromethane Dichlorodifluoromethane Stryl ether Ethyl benzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND N	J	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	0.20 0.12 0.30 0.27 0.14 0.15 0.21 0.095 0.11 0.21 0.55 0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14 0.21	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04	
1,1-Dichloroethane 1,2,4-Trichlorobenzene 1,2-Dibromo-3-Chloropropane 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 2-Butanone (MEK) 2-Hexanone 3-Methyl-2-pentanone (MIBK) Acetone 3-momoform 3-romomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroform Chloromethane Cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorodifluoromethane Cichlorodifluoromethane Cichlorodifluoromethane Cichlorodifluoromethane Cichlorodifluoromethane Chlorodifluoromethane Cichlorodifluoromethane Chlorodifluoromethane Cichlorodifluoromethane Cichlorodifluoromethane Cichlorodifluoromethane Chlorodifluoromethane	ND N	J	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	0.12 0.30 0.27 0.14 0.15 0.21 0.095 0.11 0.25 0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14 0.21	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1,1-Dichloroethene 1,2,4-Trichlorobenzene 1,2-Dibromo-3-Chloropropane 1,2-Dichlorobenzene 1,2-Dichloroethane 1,2-Dichloropropane 1,3-Dichlorobenzene 1,3-Dichlorobenzene 2-Butanone (MEK) 2-Hexanone 4-Methyl-2-pentanone (MIBK) Acetone Benzene Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroform Chloromethane Cis-1,2-Dichloropropene Cyclohexane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl acetate Methyl tert-butyl ether	ND ND 0.94 ND	J	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 5.0 5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	0.12 0.30 0.27 0.14 0.15 0.21 0.095 0.11 0.25 0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14 0.21	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1,2,4-Trichlorobenzene 1,2-Dibromo-3-Chloropropane 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 2-Butanone (MEK) 2-Hexanone 4-Methyl-2-pentanone (MIBK) Acetone 3-enzene 3-romoform 3-romomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroform Chloromethane Cis-1,2-Dichloropropene Cyclohexane Dichlorodifluoromethane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl acetate Methyl tert-butyl ether	ND ND 0.94 ND	J	1.0 1.0 1.0 1.0 1.0 1.0 1.0 5.0 5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	0.30 0.27 0.14 0.15 0.21 0.095 0.11 0.55 0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04	1 1 1 1 1 1 1 1 1 1 1 1 1
1,2-Dibromo-3-Chloropropane 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 2,4-Dichlorobenzene 2-Butanone (MEK) 2-Hexanone 1-Methyl-2-pentanone (MIBK) Acetone 3-Bornene 3-momoform 3-romomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroform Chloromethane Cis-1,2-Dichloropropene Cyclohexane Dichlorodifluoromethane Cichlorodifluoromethane Cichl	ND 0.94 ND	J	1.0 1.0 1.0 1.0 1.0 1.0 5.0 5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	0.27 0.14 0.15 0.21 0.095 0.11 0.25 0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04	1 1 1 1 1 1
1,2-Dichlorobenzene 1,2-Dichloropropane 1,2-Dichloropropane 1,3-Dichlorobenzene 2,4-Dichlorobenzene 2-Butanone (MEK) 2-Hexanone 1-Methyl-2-pentanone (MIBK) Acetone 3-Bromoform 3-romomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroform Chloromethane Cis-1,2-Dichloropropene Cyclohexane Dichlorodifluoromethane Cichlorodifluoromethane Cichlorodifluorome	0.94 ND ND ND 0.22 ND ND ND ND ND 14 ND	J	1.0 1.0 1.0 1.0 1.0 5.0 5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	0.14 0.15 0.21 0.095 0.11 0.25 0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14 0.21	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1,2-Dichloroethane 1,2-Dichloropropane 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2-Butanone (MEK) 2-Hexanone 4-Methyl-2-pentanone (MIBK) Acetone Benzene Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroform Chloromethane Cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorodifluoromethane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND ND ND 14 ND	J	1.0 1.0 1.0 1.0 5.0 5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	0.15 0.21 0.095 0.11 0.21 0.55 0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14 0.21	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04	1 1 1 1 1 1 1 1 1 1
1,2-Dichloroethane 1,2-Dichloropropane 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2-Butanone (MEK) 2-Hexanone 4-Methyl-2-pentanone (MIBK) Acetone Benzene Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroform Chloromethane Cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorodifluoromethane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND ND ND 14 ND	J	1.0 1.0 1.0 1.0 5.0 5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	0.21 0.095 0.11 0.21 0.55 0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04	1 1 1 1 1 1 1 1 1
1,3-Dichlorobenzene 1,4-Dichlorobenzene 2-Butanone (MEK) 2-Hexanone 4-Methyl-2-pentanone (MIBK) Acetone Benzene Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorodibromomethane Chloroform Chloroethane Chloroform Chloromethane Cis-1,2-Dichloroethene Cis-1,3-Dichloropropene Cyclohexane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND 0.22 ND ND ND 14 ND	J	1.0 1.0 5.0 5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	0.095 0.11 0.21 0.55 0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14 0.21	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04	1 1 1 1 1 1 1 1 1
1,4-Dichlorobenzene 2-Butanone (MEK) 2-Hexanone 4-Methyl-2-pentanone (MIBK) Acetone Benzene Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorodibromomethane Chlorodibromomethane Chloroform Chloromethane Chloromethane Cis-1,2-Dichloropropene Cyclohexane Dichlorodifluoromethane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	0.22 ND ND ND 14 ND	J	1.0 5.0 5.0 5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0	0.11 0.21 0.55 0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04	1 1 1 1 1 1 1 1
2-Butanone (MEK) 2-Hexanone 4-Methyl-2-pentanone (MIBK) Acetone Benzene Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroethane Chloromethane Cis-1,2-Dichloropropene Cyclohexane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND ND 14 ND	J	5.0 5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	0.21 0.55 0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04	1 1 1 1 1 1 1 1
2-Butanone (MEK) 2-Hexanone 4-Methyl-2-pentanone (MIBK) Acetone Benzene Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroethane Chloromethane cis-1,2-Dichloropropene Cyclohexane Dichlorodifluoromethane Ethyl ether Ethyl benzene Isopropylbenzene Methyl acetate Methyl tert-butyl ether	ND ND 14 ND	J	5.0 5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	0.55 0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04	1 1 1 1 1 1 1
2-Hexanone 4-Methyl-2-pentanone (MIBK) Acetone Benzene Benzene Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chlorodrane Chloroethane Chloroethane Chloromethane cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane Isopropylbenzene Methyl acetate Methyl tert-butyl ether	ND 14 ND	J	5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04	1 1 1 1 1
Acetone Benzene Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroethane Chloromethane cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane Isopropylbenzene Methyl acetate Methyl tert-butyl ether	14 ND ND ND ND ND ND 0.35 ND	J	5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04	1 1 1 1 1 1 1
Acetone Benzene Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroethane Chloromethane cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane Isopropylbenzene Methyl acetate Methyl tert-butyl ether	14 ND ND ND ND ND ND 0.35 ND	J	5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04	1 1 1 1
Benzene Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloromethane Cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorodifluoromethane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND ND ND ND ND ND ND O.35 ND ND	J	1.0 1.0 1.0 1.0 1.0 1.0 1.0	0.11 0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04	1 1 1 1
Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroform Chloromethane Cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorodifluoromethane Ethyl ether Ethyl ether Ethylbenzene 1,2-Dibromoethane Isopropylbenzene Methyl acetate Methyl tert-butyl ether	ND ND ND 0.35 ND ND	J	1.0 1.0 1.0 1.0 1.0 1.0	0.19 0.31 0.21 0.14 0.14 0.14 0.21	ug/L ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04	1 1 1
Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroform Chloromethane Cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND ND ND 0.35 ND ND	J	1.0 1.0 1.0 1.0 1.0 1.0	0.31 0.21 0.14 0.14 0.14 0.21	ug/L ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04	1 1 1 1
Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroform Chloromethane Chloromethane Cis-1,2-Dichloroethene Cis-1,3-Dichloropropene Cyclohexane Dichlorobromomethane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND ND 0.35 ND ND	J	1.0 1.0 1.0 1.0 1.0	0.21 0.14 0.14 0.14 0.21	ug/L ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04 09/15/14 16:04 09/15/14 16:04	1 1 1
Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroform Chloromethane Cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorobromomethane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane Isopropylbenzene Methyl acetate Methyl tert-butyl ether	ND 0.35 ND ND ND		1.0 1.0 1.0 1.0	0.14 0.14 0.14 0.21	ug/L ug/L ug/L		09/15/14 16:04 09/15/14 16:04 09/15/14 16:04	1
Chlorobenzene Chlorodibromomethane Chloroethane Chloroform Chloromethane cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorobromomethane Dichlorodifluoromethane Ethyl ether Ethylbenzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	0.35 ND ND ND		1.0 1.0 1.0 1.0	0.14 0.14 0.21	ug/L ug/L		09/15/14 16:04 09/15/14 16:04	1
Chlorodibromomethane Chloroethane Chloroform Chloromethane Cis-1,2-Dichloroethene Cis-1,3-Dichloropropene Cyclohexane Dichlorobromomethane Dichlorodifluoromethane Ethyl ether Ethyl benzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND ND ND		1.0 1.0 1.0	0.14 0.21	ug/L		09/15/14 16:04	
Chloroethane Chloroform Chloromethane cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorobromomethane Dichlorodifluoromethane Ethyl ether Ethylbenzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND ND		1.0 1.0	0.21	.			
Chloroform Chloromethane cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorobromomethane Dichlorodifluoromethane Ethyl ether Ethylbenzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND		1.0		~g/=		09/15/14 16:04	1
Chloromethane cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorobromomethane Dichlorodifluoromethane Ethyl ether Ethylbenzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether				0.17	ug/L		09/15/14 16:04	1
cis-1,2-Dichloroethene cis-1,3-Dichloropropene Cyclohexane Dichlorobromomethane Dichlorodifluoromethane Ethyl ether Ethylbenzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	110		1.0		ug/L		09/15/14 16:04	1
cis-1,3-Dichloropropene Cyclohexane Dichlorobromomethane Dichlorodifluoromethane Ethyl ether Ethylbenzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND		1.0		ug/L		09/15/14 16:04	1
Cyclohexane Dichlorobromomethane Dichlorodifluoromethane Ethyl ether Ethylbenzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND		1.0		ug/L		09/15/14 16:04	1
Dichlorobromomethane Dichlorodifluoromethane Ethyl ether Ethylbenzene 1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND		1.0		ug/L		09/15/14 16:04	1
Dichlorodifluoromethane Ethyl ether Ethylbenzene 1,2-Dibromoethane Isopropylbenzene Methyl acetate Methyl tert-butyl ether	ND		1.0		ug/L		09/15/14 16:04	· 1
Ethyl ether Ethylbenzene 1,2-Dibromoethane sopropylbenzene Wethyl acetate Methyl tert-butyl ether	ND		1.0		ug/L		09/15/14 16:04	1
Ethylbenzene 1,2-Dibromoethane Isopropylbenzene Methyl acetate Methyl tert-butyl ether	5.5		1.0	0.082			09/15/14 16:04	1
1,2-Dibromoethane sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND		1.0		ug/L ug/L		09/15/14 16:04	1
sopropylbenzene Methyl acetate Methyl tert-butyl ether	ND		1.0		ug/L		09/15/14 16:04	1
Methyl acetate Methyl tert-butyl ether	ND		1.0		ug/L		09/15/14 16:04	1
Methyl tert-butyl ether	ND		1.0		ug/L ug/L		09/15/14 16:04	
	ND		1.0		ug/L ug/L		09/15/14 16:04	1
	ND		1.0		ug/L ug/L		09/15/14 16:04	1
Methylcyclohexane Methylene Chloride	ND		1.0		ug/L ug/L		09/15/14 16:04	1
Styrene	ND		1.0	0.13			09/15/14 16:04	1
·	ND		1.0		ug/L ug/L			1
Tetrachloroethene Toluene	ND ND						09/15/14 16:04 09/15/14 16:04	1
			1.0		ug/L ug/L			
rans-1,2-Dichloroethene	ND		1.0		•		09/15/14 16:04	1
trans-1,3-Dichloropropene	ND		1.0		ug/L		09/15/14 16:04	1
Trichloroethene Trichlorofluoromethane	ND		1.0		ug/L		09/15/14 16:04	1
i richiorottuoromethane Vinyl chloride	ND		1.0 1.0		ug/L ug/L		09/15/14 16:04 09/15/14 16:04	1
	ND			0.20	· 5· –			
Surrogate %I 1,2-Dichloroethane-d4 (Surr)	ND		Limits			Prepared		Dil Fac

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-5

TestAmerica Job ID: 180-36441-1

Matrix: Water

Client Sample ID: SW-3 LANGAN

Date Collected: 09/04/14 13:20 Date Received: 09/06/14 09:15

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 118		09/15/14 16:04	1
Dibromofluoromethane (Surr)	101		70 - 128		09/15/14 16:04	1
Toluene-d8 (Surr)	106		71 - 118		09/15/14 16:04	1

Method: 300.0 - Anions, Ion Chrom	natography								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	100		5.0	1.1	mg/L			09/17/14 17:57	5

Analyte	Result Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	1700	150	150	ug/L		09/08/14 12:45	09/09/14 17:37	15
p-Phenolsulfonic acid	70	50	50	ug/L		09/08/14 12:45	09/10/14 00:36	5
Benzenesulfonic acid	ND	50	50	ug/L		09/08/14 12:45	09/10/14 00:36	5
Resorcinol	ND	50	50	ug/L		09/08/14 12:45	09/10/14 00:36	5
2,3',4-Trihydroxydiphenyl	ND	50	50	ug/L		09/08/14 12:45	09/10/14 00:36	5

Client Sample ID: SED-101

Date Collected: 09/04/14 14:00

Lab Sample ID: 180-36441-6

Matrix: Solid

te Collected: 09/04/14 14:00 Matrix: Solid te Received: 09/06/14 09:15 Percent Solids: 91.2

Method: 8260B - Volatile Organic									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.5	0.53	ug/Kg	-	09/08/14 04:18	09/08/14 09:45	
1,1,2,2-Tetrachloroethane	ND		5.5	0.79	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	•
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.5	1.2	ug/Kg	₩	09/08/14 04:18	09/08/14 09:45	•
1,1,2-Trichloroethane	ND		5.5	0.91	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	
1,1-Dichloroethane	ND		5.5	0.63	ug/Kg	₩	09/08/14 04:18	09/08/14 09:45	•
1,1-Dichloroethene	ND		5.5	0.93	ug/Kg	₩	09/08/14 04:18	09/08/14 09:45	
1,2,4-Trichlorobenzene	ND		5.5	0.97	ug/Kg	*	09/08/14 04:18	09/08/14 09:45	
1,2-Dibromo-3-Chloropropane	ND		5.5	0.82	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	•
1,2-Dichlorobenzene	ND		5.5	0.87	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	•
1,2-Dichloroethane	ND		5.5	0.67	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	
1,2-Dichloropropane	ND		5.5	0.60	ug/Kg	₩	09/08/14 04:18	09/08/14 09:45	
1,3-Dichlorobenzene	ND		5.5	0.72	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	•
1,4-Dichlorobenzene	ND		5.5	0.70	ug/Kg	₩	09/08/14 04:18	09/08/14 09:45	
2-Butanone (MEK)	ND		5.5	0.97	ug/Kg	₩	09/08/14 04:18	09/08/14 09:45	
2-Hexanone	ND		5.5	0.76	ug/Kg	₩	09/08/14 04:18	09/08/14 09:45	•
4-Methyl-2-pentanone (MIBK)	ND		5.5	0.72	ug/Kg		09/08/14 04:18	09/08/14 09:45	
Acetone	ND		22	5.5	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	•
Benzene	ND		5.5	0.74	ug/Kg	₩	09/08/14 04:18	09/08/14 09:45	
Bromoform	ND		5.5	0.49	ug/Kg		09/08/14 04:18	09/08/14 09:45	,
Bromomethane	ND	*	5.5	0.81	ug/Kg	₩	09/08/14 04:18	09/08/14 09:45	
Carbon disulfide	ND		5.5	0.56	ug/Kg	₩	09/08/14 04:18	09/08/14 09:45	
Carbon tetrachloride	ND	*	5.5	0.49	ug/Kg		09/08/14 04:18	09/08/14 09:45	
Chlorobenzene	ND		5.5	0.83	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	
Chlorodibromomethane	ND		5.5	0.78	ug/Kg	₩	09/08/14 04:18	09/08/14 09:45	
Chloroethane	ND	*	5.5	1.7	ug/Kg		09/08/14 04:18	09/08/14 09:45	• • • • • • • •
Chloroform	ND		5.5	0.64	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	
Chloromethane	ND		5.5	0.93	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	
cis-1,2-Dichloroethene	ND		5.5	0.77	ug/Kg		09/08/14 04:18	09/08/14 09:45	

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-101

Date Collected: 09/04/14 14:00 Date Received: 09/06/14 09:15 Lab Sample ID: 180-36441-6

Matrix: Solid

Percent Solids: 91.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND		5.5	0.74	ug/Kg	₩	09/08/14 04:18	09/08/14 09:45	1
Cyclohexane	ND		5.5	0.41	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Dichlorobromomethane	ND		5.5	0.62	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Dichlorodifluoromethane	ND		5.5	0.73	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Ethyl ether	0.66	J	5.5	0.64	ug/Kg	₩	09/08/14 04:18	09/08/14 09:45	1
Ethylbenzene	ND		5.5	0.70	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
1,2-Dibromoethane	ND		5.5	0.95	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Isopropylbenzene	ND		5.5	0.74	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Methyl acetate	ND		5.5	0.99	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Methyl tert-butyl ether	ND		5.5	0.82	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Methylcyclohexane	ND		5.5	0.80	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Methylene Chloride	ND		5.5	0.74	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Styrene	ND		5.5	0.77	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Tetrachloroethene	ND		5.5	0.75	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Toluene	ND		5.5	0.80	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
trans-1,2-Dichloroethene	ND		5.5	0.65	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
trans-1,3-Dichloropropene	ND		5.5	0.66	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Trichloroethene	ND		5.5	0.72	ug/Kg	\$	09/08/14 04:18	09/08/14 09:45	1
Trichlorofluoromethane	ND		5.5	1.0	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Vinyl chloride	ND		5.5	0.51	ug/Kg	₽	09/08/14 04:18	09/08/14 09:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		52 - 124				09/08/14 04:18	09/08/14 09:45	1
4-Bromofluorobenzene (Surr)	92		63 - 120				09/08/14 04:18	09/08/14 09:45	1
Dibromofluoromethane (Surr)	100		68 - 121				09/08/14 04:18	09/08/14 09:45	1
Toluene-d8 (Surr)	99		72 - 127				09/08/14 04:18	09/08/14 09:45	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	59		11	2.3	mg/Kg	‡		09/14/14 17:49	1
- Method: In-House - Sulfonic Ac	ids by LCMS/MS	8							
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	140		20	20	ug/Kg		09/08/14 13:30	09/11/14 12:46	1
p-Phenolsulfonic acid	ND		20	20	ug/Kg		09/08/14 13:30	09/11/14 12:46	1
Benzenesulfonic acid	ND	*	20	20	ug/Kg		09/08/14 13:30	09/11/14 12:46	1
Resorcinol	ND		20	20	ug/Kg		09/08/14 13:30	09/11/14 12:46	1
2,3',4-Trihydroxydiphenyl	ND		59	59	ug/Kg		09/08/14 13:30	09/11/14 12:46	1
- General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.8		0.10	0.10	%			09/10/14 09:37	1

Client Sample ID: SG-7

Date Collected: 09/04/14 14:30

Lab Sample ID: 180-36441-7

Matrix: Water

0.10

91

0.10 %

Date Received: 09/06/14 09:15

Percent Solids

Method: 8260C - Volatile Organic (Compounds (GC/MS)							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			09/15/14 16:28	1

TestAmerica Pittsburgh

09/10/14 09:37

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-7

TestAmerica Job ID: 180-36441-1

Matrix: Water

Client Sample ID: SG-7

1,2-Dichloroethane-d4 (Surr)

Date Collected: 09/04/14 14:30
Date Received: 09/06/14 09:15

Analyte									
		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
1,1,2,2-Tetrachloroethane	ND		1.0	0.20				09/15/14 16:28	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			09/15/14 16:28	
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			09/15/14 16:28	
I,1-Dichloroethane	ND		1.0	0.12	ug/L			09/15/14 16:28	
1,1-Dichloroethene	ND		1.0	0.30	ug/L			09/15/14 16:28	
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			09/15/14 16:28	
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			09/15/14 16:28	
1,2-Dichlorobenzene	1.1		1.0	0.15	ug/L			09/15/14 16:28	
1,2-Dichloroethane	ND		1.0	0.21	ug/L			09/15/14 16:28	
1,2-Dichloropropane	ND		1.0	0.095	ug/L			09/15/14 16:28	
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			09/15/14 16:28	
1,4-Dichlorobenzene	0.23	J	1.0	0.21	ug/L			09/15/14 16:28	
2-Butanone (MEK)	ND		5.0	0.55	ug/L			09/15/14 16:28	
2-Hexanone	ND		5.0	0.16	ug/L			09/15/14 16:28	
I-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			09/15/14 16:28	
Acetone	6.3		5.0	2.5	ug/L			09/15/14 16:28	
Benzene	ND		1.0	0.11	ug/L			09/15/14 16:28	
Bromoform	ND		1.0	0.19	ug/L			09/15/14 16:28	
Bromomethane	ND		1.0	0.31	ug/L			09/15/14 16:28	
Carbon disulfide	ND		1.0	0.21	ug/L			09/15/14 16:28	
Carbon tetrachloride	ND		1.0	0.14	ug/L			09/15/14 16:28	
Chlorobenzene	0.43	J	1.0	0.14	ug/L			09/15/14 16:28	
Chlorodibromomethane	ND		1.0	0.14	ug/L			09/15/14 16:28	
Chloroethane	ND		1.0	0.21	ug/L			09/15/14 16:28	
Chloroform	ND		1.0	0.17	_			09/15/14 16:28	
Chloromethane	ND		1.0	0.28				09/15/14 16:28	
is-1,2-Dichloroethene	ND		1.0	0.24				09/15/14 16:28	
is-1,3-Dichloropropene	ND		1.0	0.19	_			09/15/14 16:28	
Cyclohexane	ND		1.0	0.25	_			09/15/14 16:28	
Dichlorobromomethane	ND		1.0	0.13				09/15/14 16:28	
Dichlorodifluoromethane	ND		1.0	0.19	_			09/15/14 16:28	
Ethyl ether	6.1		1.0	0.082	•			09/15/14 16:28	
thylbenzene	ND		1.0	0.23				09/15/14 16:28	
,2-Dibromoethane	ND		1.0	0.18	_			09/15/14 16:28	
sopropylbenzene	ND		1.0	0.16	_			09/15/14 16:28	
Methyl acetate	ND		1.0	0.14				09/15/14 16:28	
Nethyl tert-butyl ether	ND ND		1.0	0.14	-			09/15/14 16:28	
	ND		1.0					09/15/14 16:28	
Methylcyclohexane				0.26					
Methylene Chloride	ND		1.0	0.13				09/15/14 16:28	
Styrene	ND		1.0	0.097				09/15/14 16:28	
etrachloroethene	ND		1.0	0.15				09/15/14 16:28	
oluene	ND		1.0	0.15				09/15/14 16:28	
rans-1,2-Dichloroethene	ND		1.0	0.17	-			09/15/14 16:28	
rans-1,3-Dichloropropene	ND		1.0	0.15				09/15/14 16:28	
richloroethene	ND		1.0	0.14				09/15/14 16:28	
richlorofluoromethane	ND		1.0	0.20	-			09/15/14 16:28	
/inyl chloride	ND		1.0	0.23	ug/L			09/15/14 16:28	
y. cc.					J				

TestAmerica Pittsburgh

09/15/14 16:28

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TestAmerica Job ID: 180-36441-1

Project/Site: INDSPEC, Petrolia PA

Client: ARCADIS U.S. Inc

Client Sample ID: SG-7 Lab Sample ID: 180-36441-7

Date Collected: 09/04/14 14:30 Matrix: Water Date Received: 09/06/14 09:15

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106	70 - 118		09/15/14 16:28	1
Dibromofluoromethane (Surr)	100	70 - 128		09/15/14 16:28	1
Toluene-d8 (Surr)	109	71 - 118		09/15/14 16:28	1

Method: 300.0 - Anions, Ion Chromatography Analyte RL MDL Unit D Dil Fac Result Qualifier Prepared Analyzed Sulfate 99 5.0 1.1 mg/L 09/17/14 18:12 5

Method: In-House - Sulfonic Acids by LCMS/MS Analyte Result Qualifier RL **RL** Unit D Prepared Analyzed Dil Fac 150 150 ug/L 09/08/14 12:45 09/09/14 18:37 m-Benzenedisulfonic acid 1900 15 50 50 ug/L 09/08/14 12:45 09/10/14 01:37 p-PhenoIsulfonic acid 120 ND 50 5 Benzenesulfonic acid 50 ug/L 09/08/14 12:45 09/10/14 01:37 Resorcinol ND 50 50 ug/L 09/08/14 12:45 09/10/14 01:37 5 2,3',4-Trihydroxydiphenyl ND 50 09/08/14 12:45 09/10/14 01:37 50 ug/L

Client Sample ID: SG-5 Lab Sample ID: 180-36441-8

Date Collected: 09/04/14 15:15 **Matrix: Water**

Date Received: 09/06/14 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			09/15/14 16:52	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			09/15/14 16:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			09/15/14 16:52	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			09/15/14 16:52	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			09/15/14 16:52	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			09/15/14 16:52	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			09/15/14 16:52	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			09/15/14 16:52	1
1,2-Dichlorobenzene	1.4		1.0	0.15	ug/L			09/15/14 16:52	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			09/15/14 16:52	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			09/15/14 16:52	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			09/15/14 16:52	1
1,4-Dichlorobenzene	0.32	J	1.0	0.21	ug/L			09/15/14 16:52	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			09/15/14 16:52	1
2-Hexanone	ND		5.0	0.16	ug/L			09/15/14 16:52	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			09/15/14 16:52	1
Acetone	8.3		5.0	2.5	ug/L			09/15/14 16:52	1
Benzene	ND		1.0	0.11	ug/L			09/15/14 16:52	1
Bromoform	ND		1.0	0.19	ug/L			09/15/14 16:52	1
Bromomethane	ND		1.0	0.31	ug/L			09/15/14 16:52	1
Carbon disulfide	ND		1.0	0.21	ug/L			09/15/14 16:52	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			09/15/14 16:52	1
Chlorobenzene	0.66	J	1.0	0.14	ug/L			09/15/14 16:52	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			09/15/14 16:52	1
Chloroethane	ND		1.0	0.21	ug/L			09/15/14 16:52	1
Chloroform	ND		1.0	0.17	ug/L			09/15/14 16:52	1
Chloromethane	ND		1.0	0.28	ug/L			09/15/14 16:52	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			09/15/14 16:52	1

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-36441-1

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-8

Matrix: Water

Client Sample ID: SG-5
Date Collected: 09/04/14 15:15

Date Received: 09/06/14 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			09/15/14 16:52	1
Cyclohexane	ND		1.0	0.25	ug/L			09/15/14 16:52	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			09/15/14 16:52	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			09/15/14 16:52	1
Ethyl ether	2.4		1.0	0.082	ug/L			09/15/14 16:52	1
Ethylbenzene	ND		1.0	0.23	ug/L			09/15/14 16:52	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			09/15/14 16:52	1
Isopropylbenzene	ND		1.0	0.16	ug/L			09/15/14 16:52	1
Methyl acetate	ND		1.0	0.14	ug/L			09/15/14 16:52	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			09/15/14 16:52	1
Methylcyclohexane	ND		1.0	0.26	ug/L			09/15/14 16:52	1
Methylene Chloride	ND		1.0	0.13	ug/L			09/15/14 16:52	1
Styrene	ND		1.0	0.097	ug/L			09/15/14 16:52	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/15/14 16:52	1
Toluene	ND		1.0	0.15	ug/L			09/15/14 16:52	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/15/14 16:52	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			09/15/14 16:52	1
Trichloroethene	ND		1.0	0.14	ug/L			09/15/14 16:52	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/15/14 16:52	1
Vinyl chloride	ND		1.0	0.23	ug/L			09/15/14 16:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		64 - 135			-		09/15/14 16:52	1
4-Bromofluorobenzene (Surr)	106		70 - 118					09/15/14 16:52	1
Dibromofluoromethane (Surr)	102		70 - 128					09/15/14 16:52	1
Toluene-d8 (Surr)	109		71 - 118					09/15/14 16:52	1

Method: 300.0 - Anions, Ion Chron	natography						
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	98	5.0	1.1 mg/L			09/17/14 18:59	5

Analyte	Result Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	2400	200	200	ug/L		09/08/14 12:45	09/09/14 16:07	20
p-Phenolsulfonic acid	120	50	50	ug/L		09/08/14 12:45	09/10/14 02:36	5
Benzenesulfonic acid	ND	50	50	ug/L		09/08/14 12:45	09/10/14 02:36	5
Resorcinol	ND	50	50	ug/L		09/08/14 12:45	09/10/14 02:36	5
2,3',4-Trihydroxydiphenyl	ND	50	50	ug/L		09/08/14 12:45	09/10/14 02:36	5

Client Sample ID: SG-6 Lab Sample ID: 180-36441-9

Date Collected: 09/04/14 16:00
Date Received: 09/06/14 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			09/14/14 20:10	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			09/14/14 20:10	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			09/14/14 20:10	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			09/14/14 20:10	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			09/14/14 20:10	1

TestAmerica Pittsburgh

Matrix: Water

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-9

TestAmerica Job ID: 180-36441-1

Matrix: Water

Client Sample ID: SG-6

Dibromofluoromethane (Surr)

Toluene-d8 (Surr)

Date Collected: 09/04/14 16:00 Date Received: 09/06/14 09:15

Method: 8260C - Volatile Orga Analyte	Result		RL	MDL		D Prepared	Analyzed	Dil Fa
1,1-Dichloroethene	ND		1.0	0.30	ug/L		09/14/14 20:10	
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L		09/14/14 20:10	•
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L		09/14/14 20:10	•
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L		09/14/14 20:10	•
1,2-Dichloroethane	ND		1.0	0.21	ug/L		09/14/14 20:10	
1,2-Dichloropropane	ND		1.0	0.095	ug/L		09/14/14 20:10	
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L		09/14/14 20:10	
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L		09/14/14 20:10	
2-Butanone (MEK)	0.84	J	5.0	0.55	ug/L		09/14/14 20:10	
2-Hexanone	ND		5.0	0.16	ug/L		09/14/14 20:10	
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L		09/14/14 20:10	
Acetone	12		5.0	2.5	ug/L		09/14/14 20:10	
Benzene	0.28	J	1.0	0.11	ug/L		09/14/14 20:10	
Bromoform	ND		1.0	0.19	ug/L		09/14/14 20:10	· · · · · · · · · ·
Bromomethane	ND		1.0	0.31	ug/L		09/14/14 20:10	
Carbon disulfide	ND		1.0	0.21	ug/L		09/14/14 20:10	
Carbon tetrachloride	ND		1.0	0.14	ug/L		09/14/14 20:10	
Chlorobenzene	ND		1.0	0.14	_		09/14/14 20:10	
Chlorodibromomethane	ND		1.0	0.14	-		09/14/14 20:10	
Chloroethane	ND		1.0	0.21			09/14/14 20:10	
Chloroform	ND		1.0	0.17	-		09/14/14 20:10	
Chloromethane	ND		1.0	0.28			09/14/14 20:10	
cis-1,2-Dichloroethene	ND		1.0	0.24			09/14/14 20:10	
cis-1,3-Dichloropropene	ND		1.0	0.19	_		09/14/14 20:10	
Cyclohexane	ND		1.0	0.25			09/14/14 20:10	
Dichlorobromomethane	ND		1.0	0.13			09/14/14 20:10	· · · · · .
Dichlorodifluoromethane	ND		1.0	0.19	_		09/14/14 20:10	
	0.11		1.0	0.082			09/14/14 20:10	
Ethyl ether Ethylbenzene	ND	.	1.0	0.002			09/14/14 20:10	· · · · · · .
1,2-Dibromoethane	ND		1.0	0.23			09/14/14 20:10	
	ND		1.0		_		09/14/14 20:10	
Isopropylbenzene Methyl gestate	ND			0.16			09/14/14 20:10	· · · · · .
Methyl acetate			1.0	0.14	_			
Methyl tert-butyl ether	ND		1.0	0.18	-		09/14/14 20:10	
Methylcyclohexane	ND		1.0	0.26			09/14/14 20:10	
Methylene Chloride	ND		1.0	0.13			09/14/14 20:10	
Styrene	ND		1.0	0.097			09/14/14 20:10	,
Tetrachloroethene	ND		1.0	0.15			09/14/14 20:10	
Toluene	ND		1.0	0.15			09/14/14 20:10	
trans-1,2-Dichloroethene	ND		1.0	0.17	-		09/14/14 20:10	•
trans-1,3-Dichloropropene	ND		1.0	0.15			09/14/14 20:10	
Trichloroethene	ND		1.0	0.14	-		09/14/14 20:10	•
Trichlorofluoromethane	ND		1.0	0.20	_		09/14/14 20:10	•
Vinyl chloride	ND		1.0	0.23	ug/L		09/14/14 20:10	•
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	124		64 - 135				09/14/14 20:10	
4-Bromofluorobenzene (Surr)	91		70 - 118				09/14/14 20:10	
Dibromoflyoromothono (Cyrr)	120		70 120				00/14/14 20:10	

TestAmerica Pittsburgh

10/9/2014

09/14/14 20:10

09/14/14 20:10

70 - 128

71 - 118

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-9

TestAmerica Job ID: 180-36441-1

Matrix: Water

Client Sample ID: SG-6 Date Collected: 09/04/14 16:00

Date Received: 09/06/14 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	89		5.0	1.1	mg/L			09/17/14 19:46	5
Method: In-House - Sulfonic Ac	ids by LCMS/MS	3							
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	130		50	50	ug/L		09/08/14 12:45	09/10/14 04:05	5
p-Phenolsulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/10/14 04:05	5
Benzenesulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/10/14 04:05	5
Resorcinol	ND		50	50	ug/L		09/08/14 12:45	09/10/14 04:05	5
2,3',4-Trihydroxydiphenyl	ND		50	50	ug/L		09/08/14 12:45	09/10/14 04:05	5

Lab Sample ID: 180-36441-10 Client Sample ID: SW-2 LANGAN

Date Collected: 09/04/14 16:15

Date Received: 09/06/14 09:15

Lab	Jampie	ID.	100-30441-10
			Matrix: Water

Analyte	Result Q	ualifier F	RL M	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1	.0 0.	.29	ug/L			09/15/14 17:15	1
1,1,2,2-Tetrachloroethane	ND	1	.0 0	.20	ug/L			09/15/14 17:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1	.0 0	.32	ug/L			09/15/14 17:15	1
1,1,2-Trichloroethane	ND	1	.0 0	20	ug/L			09/15/14 17:15	1
1,1-Dichloroethane	ND	1	.0 0	.12	ug/L			09/15/14 17:15	1
1,1-Dichloroethene	ND	1	.0 0	.30	ug/L			09/15/14 17:15	1
1,2,4-Trichlorobenzene	ND	1	.0 0	27	ug/L			09/15/14 17:15	1
1,2-Dibromo-3-Chloropropane	ND	1	.0 0	.14	ug/L			09/15/14 17:15	1
1,2-Dichlorobenzene	ND	1	.0 0	.15	ug/L			09/15/14 17:15	1
1,2-Dichloroethane	ND	1	.0 0	21	ug/L			09/15/14 17:15	1
1,2-Dichloropropane	ND	1	.0 0.0	95	ug/L			09/15/14 17:15	1
1,3-Dichlorobenzene	ND	1	.0 0	.11	ug/L			09/15/14 17:15	1
1,4-Dichlorobenzene	ND	1	.0 0	21	ug/L			09/15/14 17:15	1
2-Butanone (MEK)	ND	5	.0 0	.55	ug/L			09/15/14 17:15	1
2-Hexanone	ND	5	.0 0	.16	ug/L			09/15/14 17:15	1
4-Methyl-2-pentanone (MIBK)	ND	5	.0 0	53	ug/L			09/15/14 17:15	1
Acetone	9.7	5	.0	2.5	ug/L			09/15/14 17:15	1
Benzene	ND	1	.0 0	.11	ug/L			09/15/14 17:15	1
Bromoform	ND	1	.0 0	19	ug/L			09/15/14 17:15	1
Bromomethane	ND	1	.0 0	.31	ug/L			09/15/14 17:15	1
Carbon disulfide	ND	1	.0 0	.21	ug/L			09/15/14 17:15	1
Carbon tetrachloride	ND	1	.0 0	.14	ug/L			09/15/14 17:15	1
Chlorobenzene	ND	1	.0 0	.14	ug/L			09/15/14 17:15	1
Chlorodibromomethane	ND	1	.0 0	.14	ug/L			09/15/14 17:15	1
Chloroethane	ND	1	.0 0	21	ug/L			09/15/14 17:15	1
Chloroform	ND	1	.0 0	.17	ug/L			09/15/14 17:15	1
Chloromethane	ND	1	.0 0	.28	ug/L			09/15/14 17:15	1
cis-1,2-Dichloroethene	ND	1	.0 0	24	ug/L			09/15/14 17:15	1
cis-1,3-Dichloropropene	ND	1	.0 0	.19	ug/L			09/15/14 17:15	1
Cyclohexane	ND	1	.0 0	.25	ug/L			09/15/14 17:15	1
Dichlorobromomethane	ND	1	.0 0	.13	ug/L			09/15/14 17:15	1
Dichlorodifluoromethane	ND	1	.0 0	.19	ug/L			09/15/14 17:15	1
Ethyl ether	ND	1	.0 0.0	82	ug/L			09/15/14 17:15	1
Ethylbenzene	ND		.0 0	23	ug/L			09/15/14 17:15	1

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10/9/2014

TestAmerica Job ID: 180-36441-1

Client: ARCADIS U.S. Inc Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-2 LANGAN

Date Collected: 09/04/14 16:15 Date Received: 09/06/14 09:15

Lab Sample ID: 180-36441-10 Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		1.0	0.18	ug/L			09/15/14 17:15	1
Isopropylbenzene	ND		1.0	0.16	ug/L			09/15/14 17:15	1
Methyl acetate	ND		1.0	0.14	ug/L			09/15/14 17:15	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			09/15/14 17:15	1
Methylcyclohexane	ND		1.0	0.26	ug/L			09/15/14 17:15	1
Methylene Chloride	ND		1.0	0.13	ug/L			09/15/14 17:15	1
Styrene	ND		1.0	0.097	ug/L			09/15/14 17:15	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/15/14 17:15	1
Toluene	ND		1.0	0.15	ug/L			09/15/14 17:15	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/15/14 17:15	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			09/15/14 17:15	1
Trichloroethene	ND		1.0	0.14	ug/L			09/15/14 17:15	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/15/14 17:15	1
Vinyl chloride	ND		1.0	0.23	ug/L			09/15/14 17:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		64 - 135			-		09/15/14 17:15	1
4-Bromofluorobenzene (Surr)	105		70 - 118					09/15/14 17:15	1
Dibromofluoromethane (Surr)	102		70 - 128					09/15/14 17:15	1
Toluene-d8 (Surr)	107		71 - 118					09/15/14 17:15	1

Analyte	romatography Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	93		5.0	1.1	mg/L			09/17/14 20:01	5
- Method: In-House - Sulfonic Ac	cids by LCMS/MS	3							
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
				50	ug/L		00/00/44 40:45	09/10/14 05:05	
m-Benzenedisulfonic acid	130		50	50	ug/L		09/08/14 12:45	09/10/14 05.05	5
m-Benzenedisulfonic acid p-Phenolsulfonic acid	130 ND		50 50		ug/L		09/08/14 12:45	09/10/14 05:05	5 5
				50	•				_
p-Phenolsulfonic acid	ND		50	50 50	ug/L		09/08/14 12:45	09/10/14 05:05	5

Client Sample ID: SW-1 LANGAN

Lab Sample ID: 180-36441-11 Date Collected: 09/04/14 16:30 **Matrix: Water**

Date Received: 09/06/14 09:15

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			09/15/14 17:40	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			09/15/14 17:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			09/15/14 17:40	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			09/15/14 17:40	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			09/15/14 17:40	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			09/15/14 17:40	1
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			09/15/14 17:40	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			09/15/14 17:40	1
1,2-Dichlorobenzene	ND	1.0	0.15	ug/L			09/15/14 17:40	1
1,2-Dichloroethane	ND	1.0	0.21	ug/L			09/15/14 17:40	1
1,2-Dichloropropane	ND	1.0	0.095	ug/L			09/15/14 17:40	1

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-11

TestAmerica Job ID: 180-36441-1

Matrix: Water

Client Sample ID: SW-1 LANGAN

Method: 300.0 - Anions, Ion Chromatography

Analyte

Sulfate

Date Collected: 09/04/14 16:30 Date Received: 09/06/14 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			09/15/14 17:40	-
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			09/15/14 17:40	
2-Butanone (MEK)	ND		5.0	0.55	ug/L			09/15/14 17:40	
2-Hexanone	ND		5.0	0.16	ug/L			09/15/14 17:40	
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			09/15/14 17:40	
Acetone	5.9		5.0	2.5	ug/L			09/15/14 17:40	
Benzene	ND		1.0	0.11	ug/L			09/15/14 17:40	
Bromoform	ND		1.0	0.19	ug/L			09/15/14 17:40	
Bromomethane	ND		1.0	0.31	ug/L			09/15/14 17:40	
Carbon disulfide	ND		1.0	0.21	ug/L			09/15/14 17:40	
Carbon tetrachloride	ND		1.0	0.14	ug/L			09/15/14 17:40	
Chlorobenzene	ND		1.0	0.14	ug/L			09/15/14 17:40	
Chlorodibromomethane	ND		1.0	0.14	ug/L			09/15/14 17:40	
Chloroethane	ND		1.0	0.21	ug/L			09/15/14 17:40	
Chloroform	ND		1.0	0.17	ug/L			09/15/14 17:40	
Chloromethane	ND		1.0	0.28	ug/L			09/15/14 17:40	
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			09/15/14 17:40	
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			09/15/14 17:40	
Cyclohexane	ND		1.0	0.25	ug/L			09/15/14 17:40	
Dichlorobromomethane	ND		1.0	0.13	ug/L			09/15/14 17:40	
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			09/15/14 17:40	
Ethyl ether	ND		1.0	0.082	ug/L			09/15/14 17:40	
Ethylbenzene	ND		1.0	0.23	ug/L			09/15/14 17:40	
1,2-Dibromoethane	ND		1.0	0.18	ug/L			09/15/14 17:40	
sopropylbenzene	ND		1.0	0.16	ug/L			09/15/14 17:40	
Methyl acetate	ND		1.0	0.14	ug/L			09/15/14 17:40	
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			09/15/14 17:40	
Methylcyclohexane	ND		1.0	0.26	ug/L			09/15/14 17:40	
Methylene Chloride	ND		1.0	0.13	ug/L			09/15/14 17:40	
Styrene	ND		1.0	0.097	ug/L			09/15/14 17:40	
Tetrachloroethene	ND		1.0	0.15	ug/L			09/15/14 17:40	
Toluene	ND		1.0	0.15	ug/L			09/15/14 17:40	
rans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/15/14 17:40	
rans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			09/15/14 17:40	
Trichloroethene	ND		1.0	0.14	ug/L			09/15/14 17:40	
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/15/14 17:40	
Vinyl chloride	ND		1.0	0.23	ug/L			09/15/14 17:40	•
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	98		64 - 135			-		09/15/14 17:40	
4-Bromofluorobenzene (Surr)	105		70 - 118					09/15/14 17:40	
Dibromofluoromethane (Surr)	101		70 - 128					09/15/14 17:40	
Toluene-d8 (Surr)	108		71 - 118					09/15/14 17:40	

TestAmerica Pittsburgh

Analyzed

09/17/14 20:17

Prepared

RL

5.0

MDL Unit

1.1 mg/L

Result Qualifier

89

Dil Fac

2

4

6

8

10

11

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-1 LANGAN Lab Sample ID: 180-36441-11

Date Collected: 09/04/14 16:30 Matrix: Water

Date Received: 09/06/14 09:15

Analyte	Result Qualifi	er RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	130	50	50	ug/L		09/08/14 12:45	09/10/14 06:05	5
p-Phenolsulfonic acid	ND	50	50	ug/L		09/08/14 12:45	09/10/14 06:05	5
Benzenesulfonic acid	ND	50	50	ug/L		09/08/14 12:45	09/10/14 06:05	5
Resorcinol	ND	50	50	ug/L		09/08/14 12:45	09/10/14 06:05	5
2,3',4-Trihydroxydiphenyl	ND	50	50	ug/L		09/08/14 12:45	09/10/14 06:05	5

Client Sample ID: DUP090414 Lab Sample ID: 180-36441-12

 Date Collected: 09/04/14 00:00
 Matrix: Solid

 Date Received: 09/06/14 09:15
 Percent Solids: 88.3

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	5.7	0.55	ug/Kg	<u> </u>	09/08/14 04:18	09/08/14 09:23	1
1,1,2,2-Tetrachloroethane	ND	5.7	0.81	ug/Kg	₩	09/08/14 04:18	09/08/14 09:23	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.7	1.2	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
1,1,2-Trichloroethane	ND	5.7	0.94	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
1,1-Dichloroethane	ND	5.7	0.65	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
1,1-Dichloroethene	ND	5.7	0.96	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
1,2,4-Trichlorobenzene	ND	5.7	1.0	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
1,2-Dibromo-3-Chloropropane	ND	5.7	0.85	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
1,2-Dichlorobenzene	ND	5.7	0.90	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
1,2-Dichloroethane	ND	5.7	0.69	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
1,2-Dichloropropane	ND	5.7	0.62	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
1,3-Dichlorobenzene	ND	5.7	0.74	ug/Kg	☼	09/08/14 04:18	09/08/14 09:23	1
1,4-Dichlorobenzene	ND	5.7	0.72	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
2-Butanone (MEK)	ND	5.7	1.0	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
2-Hexanone	ND	5.7	0.78	ug/Kg	₩	09/08/14 04:18	09/08/14 09:23	1
4-Methyl-2-pentanone (MIBK)	ND	5.7	0.74	ug/Kg	₩.	09/08/14 04:18	09/08/14 09:23	1
Acetone	ND	23	5.7	ug/Kg	₩	09/08/14 04:18	09/08/14 09:23	1
Benzene	ND	5.7	0.76	ug/Kg	₩	09/08/14 04:18	09/08/14 09:23	1
Bromoform	ND	5.7	0.50	ug/Kg	\$	09/08/14 04:18	09/08/14 09:23	1
Bromomethane	ND *	5.7	0.84	ug/Kg	₩	09/08/14 04:18	09/08/14 09:23	1
Carbon disulfide	ND	5.7	0.58	ug/Kg	₩	09/08/14 04:18	09/08/14 09:23	1
Carbon tetrachloride	ND *	5.7	0.51	ug/Kg		09/08/14 04:18	09/08/14 09:23	1
Chlorobenzene	ND	5.7	0.86	ug/Kg	₩	09/08/14 04:18	09/08/14 09:23	1
Chlorodibromomethane	ND	5.7	0.80	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
Chloroethane	ND *	5.7	1.8	ug/Kg	\$	09/08/14 04:18	09/08/14 09:23	1
Chloroform	ND	5.7	0.66	ug/Kg	₩	09/08/14 04:18	09/08/14 09:23	1
Chloromethane	ND	5.7	0.96	ug/Kg	₩	09/08/14 04:18	09/08/14 09:23	1
cis-1,2-Dichloroethene	ND	5.7	0.80	ug/Kg		09/08/14 04:18	09/08/14 09:23	1
cis-1,3-Dichloropropene	ND	5.7	0.77	ug/Kg	₩	09/08/14 04:18	09/08/14 09:23	1
Cyclohexane	ND	5.7	0.42	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
Dichlorobromomethane	ND	5.7	0.64	ug/Kg		09/08/14 04:18	09/08/14 09:23	1
Dichlorodifluoromethane	ND	5.7	0.75	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
Ethyl ether	ND	5.7	0.66	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
Ethylbenzene	ND	5.7	0.73	ug/Kg		09/08/14 04:18	09/08/14 09:23	1
1,2-Dibromoethane	ND	5.7	0.98	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
Isopropylbenzene	ND	5.7		ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
Methyl acetate	ND	5.7	1.0	ug/Kg		09/08/14 04:18	09/08/14 09:23	1
Methyl tert-butyl ether	ND	5.7	0.85	ug/Kg	₩	09/08/14 04:18	09/08/14 09:23	1

TestAmerica Pittsburgh

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TestAmerica Job ID: 180-36441-1

3

7

0

10

11

2

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-12

TestAmerica Job ID: 180-36441-1

Client Sample ID: DUP090414 Date Collected: 09/04/14 00:00

Matrix: Solid

Date Received: 09/06/14 09:15

Percent Solids: 88.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylcyclohexane	ND		5.7	0.82	ug/Kg	₩	09/08/14 04:18	09/08/14 09:23	1
Methylene Chloride	ND		5.7	0.76	ug/Kg	\$	09/08/14 04:18	09/08/14 09:23	1
Styrene	ND		5.7	0.80	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
Tetrachloroethene	ND		5.7	0.77	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
Toluene	ND		5.7	0.83	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
trans-1,2-Dichloroethene	ND		5.7	0.67	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
trans-1,3-Dichloropropene	ND		5.7	0.68	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
Trichloroethene	ND		5.7	0.75	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
Trichlorofluoromethane	ND		5.7	1.0	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
Vinyl chloride	ND		5.7	0.53	ug/Kg	₽	09/08/14 04:18	09/08/14 09:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		52 - 124				09/08/14 04:18	09/08/14 09:23	1
4-Bromofluorobenzene (Surr)	93		63 - 120				09/08/14 04:18	09/08/14 09:23	1
Dibromofluoromethane (Surr)	105		68 - 121				09/08/14 04:18	09/08/14 09:23	1
Toluene-d8 (Surr)	102		72 - 127				09/08/14 04:18	09/08/14 09:23	1
- Method: 300.0 - Anions, Ion Ch	romatography -	Soluble							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	120		11	2.4	mg/Kg	\		09/14/14 18:05	1
Method: In-House - Sulfonic A	cids by LCMS/M	S							
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	160		19	19	ug/Kg		09/08/14 13:30	09/11/14 15:35	1
p-PhenoIsulfonic acid	ND		19	19	ug/Kg		09/08/14 13:30	09/11/14 15:35	1
Benzenesulfonic acid	ND	*	19	19	ug/Kg		09/08/14 13:30	09/11/14 15:35	1
Resorcinol	ND		19	19	ug/Kg		09/08/14 13:30	09/11/14 15:35	1
2,3',4-Trihydroxydiphenyl	ND		58	58	ug/Kg		09/08/14 13:30	09/11/14 15:35	1
General Chemistry									

Client Sample ID: SG-4 Lab Sample ID: 180-36441-13

Result Qualifier

12

88

Date Collected: 09/05/14 09:55 Matrix: Water

RL

0.10

0.10

RL Unit

0.10 %

0.10 %

D

Prepared

Date Received: 09/06/14 09:15

Analyte

Percent Moisture

Percent Solids

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			09/15/14 13:14	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			09/15/14 13:14	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			09/15/14 13:14	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			09/15/14 13:14	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			09/15/14 13:14	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			09/15/14 13:14	1
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			09/15/14 13:14	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			09/15/14 13:14	1
1,2-Dichlorobenzene	1.6	1.0	0.15	ug/L			09/15/14 13:14	1
1,2-Dichloroethane	ND	1.0	0.21	ug/L			09/15/14 13:14	1
1,2-Dichloropropane	ND	1.0	0.095	ug/L			09/15/14 13:14	1

TestAmerica Pittsburgh

Dil Fac

Analyzed

09/10/14 09:37

09/10/14 09:37

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 300.0 - Anions, Ion Chromatography

Result

92

Qualifier

Analyte

Sulfate

Lab Sample ID: 180-36441-13

TestAmerica Job ID: 180-36441-1

Matrix: Water

Client Sample ID: SG-4

Date Collected: 09/05/14 09:55 Date Received: 09/06/14 09:15

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued) Result Qualifier RL **MDL** Unit D Dil Fac Analyte Prepared Analyzed 1,3-Dichlorobenzene ND 1.0 09/15/14 13:14 0.11 ug/L 1.0 0.21 09/15/14 13:14 1,4-Dichlorobenzene 0.36 ug/L 2-Butanone (MEK) ND 5.0 0.55 ug/L 09/15/14 13:14 ND 09/15/14 13:14 2-Hexanone 5.0 0.16 ug/L 4-Methyl-2-pentanone (MIBK) ND 5.0 0.53 ug/L 09/15/14 13:14 5.0 2.5 ug/L 09/15/14 13:14 **Acetone** 5.4 Benzene 1.0 0.11 ug/L 09/15/14 13:14 0.12 Bromoform ND 1.0 0.19 09/15/14 13:14 ug/L Bromomethane ND 1.0 0.31 ug/L 09/15/14 13:14 Carbon disulfide ND 1.0 0.21 ug/L 09/15/14 13:14 ND Carbon tetrachloride 1.0 0.14 ug/L 09/15/14 13:14 0.88 1.0 0.14 ug/L 09/15/14 13:14 Chlorobenzene Chlorodibromomethane ND 1.0 0.14 ug/L 09/15/14 13:14 Chloroethane ND 1.0 0.21 ug/L 09/15/14 13:14 Chloroform ND 0.17 09/15/14 13:14 10 ug/L Chloromethane ND 1.0 0.28 09/15/14 13:14 ug/L cis-1.2-Dichloroethene ND 1.0 0.24 ug/L 09/15/14 13:14 cis-1,3-Dichloropropene ND 1.0 0.19 09/15/14 13:14 ug/L Cyclohexane ND 1.0 0.25 ug/L 09/15/14 13:14 Dichlorobromomethane ND 1.0 0.13 ug/L 09/15/14 13:14 Dichlorodifluoromethane ND 1.0 0.19 ua/L 09/15/14 13:14 1.0 0.082 ug/L 09/15/14 13:14 Ethyl ether Ethylbenzene ND 1.0 0.23 ug/L 09/15/14 13:14 1,2-Dibromoethane ND 1.0 0.18 ug/L 09/15/14 13:14 Isopropylbenzene ND 1.0 0.16 ug/L 09/15/14 13:14 ND 1.0 0.14 09/15/14 13:14 Methyl acetate ug/L Methyl tert-butyl ether 09/15/14 13:14 ND 1.0 0.18 ug/L Methylcyclohexane ND 0.26 ug/L 09/15/14 13:14 1.0 Methylene Chloride ND 1.0 0.13 ug/L 09/15/14 13:14 ND Styrene 1.0 0.097 ug/L 09/15/14 13:14 Tetrachloroethene ND 1.0 0.15 ug/L 09/15/14 13:14 Toluene ND 1.0 0.15 ug/L 09/15/14 13:14 trans-1,2-Dichloroethene ND 1.0 0.17 ug/L 09/15/14 13:14 ug/L trans-1,3-Dichloropropene ND 1.0 0.15 09/15/14 13:14 Trichloroethene ND 1.0 0.14 ug/L 09/15/14 13:14 Trichlorofluoromethane ND 1.0 0.20 ug/L 09/15/14 13:14 Vinyl chloride ND 09/15/14 13:14 1.0 0.23 ug/L %Recovery Qualifier Limits Dil Fac Surrogate Prepared Analyzed 1,2-Dichloroethane-d4 (Surr) 97 64 - 135 09/15/14 13:14 102 09/15/14 13:14 4-Bromofluorobenzene (Surr) 70 - 118 Dibromofluoromethane (Surr) 102 70 - 128 09/15/14 13:14 Toluene-d8 (Surr) 106 71 - 118 09/15/14 13:14

TestAmerica Pittsburgh

Analyzed

09/17/14 20:32

RL

5.0

MDL Unit

1.1 mg/L

D

Prepared

Dil Fac

5

2

<u>5</u>

5

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12

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-4 Lab Sample ID: 180-36441-13

Date Collected: 09/05/14 09:55 Matrix: Water

Date Received: 09/06/14 09:15

Method: 8315A - Carbonyi Com	pounds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	9.7	J	50	5.0	ug/L		09/07/14 12:10	09/09/14 13:55	1
Method: In-House - Sulfonic Ac	ids by LCMS/MS	3							
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	3700		250	250	ug/L		09/08/14 12:45	09/11/14 05:07	25
n Phonoleulfonic acid	150		50	50	ua/l		09/08/14 12:45	09/11/14 19:19	5

50 09/08/14 12:45 09/11/14 19:19 Benzenesulfonic acid 50 ug/L Resorcinol ND 50 50 ug/L 09/08/14 12:45 09/11/14 19:19 09/08/14 12:45 ND 50 2,3',4-Trihydroxydiphenyl 50 ug/L 09/11/14 19:19

Client Sample ID: SG-3 Lab Sample ID: 180-36441-14

Date Collected: 09/05/14 10:30 Matrix: Water

Date Received: 09/06/14 09:15

Analyte	Result Qu	alifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			09/16/14 16:07	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			09/16/14 16:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			09/16/14 16:07	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			09/16/14 16:07	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			09/16/14 16:07	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			09/16/14 16:07	1
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			09/16/14 16:07	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			09/16/14 16:07	1
1,2-Dichlorobenzene	1.9	1.0	0.15	ug/L			09/16/14 16:07	1
1,2-Dichloroethane	ND	1.0	0.21	ug/L			09/16/14 16:07	1
1,2-Dichloropropane	ND	1.0	0.095	ug/L			09/16/14 16:07	1
1,3-Dichlorobenzene	ND	1.0	0.11	ug/L			09/16/14 16:07	1
1,4-Dichlorobenzene	0.36 J	1.0	0.21	ug/L			09/16/14 16:07	1
2-Butanone (MEK)	0.69 J	5.0	0.55	ug/L			09/16/14 16:07	1
2-Hexanone	ND	5.0	0.16	ug/L			09/16/14 16:07	1
4-Methyl-2-pentanone (MIBK)	ND	5.0	0.53	ug/L			09/16/14 16:07	1
Acetone	7.2	5.0	2.5	ug/L			09/16/14 16:07	1
Benzene	0.17 J	1.0	0.11	ug/L			09/16/14 16:07	1
Bromoform	ND	1.0	0.19	ug/L			09/16/14 16:07	1
Bromomethane	ND	1.0	0.31	ug/L			09/16/14 16:07	1
Carbon disulfide	ND	1.0	0.21	ug/L			09/16/14 16:07	1
Carbon tetrachloride	ND	1.0	0.14	ug/L			09/16/14 16:07	1
Chlorobenzene	1.1	1.0	0.14	ug/L			09/16/14 16:07	1
Chlorodibromomethane	ND	1.0	0.14	ug/L			09/16/14 16:07	1
Chloroethane	ND	1.0	0.21	ug/L			09/16/14 16:07	1
Chloroform	ND	1.0	0.17	ug/L			09/16/14 16:07	1
Chloromethane	ND	1.0	0.28	ug/L			09/16/14 16:07	1
cis-1,2-Dichloroethene	ND	1.0	0.24	ug/L			09/16/14 16:07	1
cis-1,3-Dichloropropene	ND	1.0	0.19	ug/L			09/16/14 16:07	1
Cyclohexane	ND	1.0	0.25	ug/L			09/16/14 16:07	1
Dichlorobromomethane	ND	1.0	0.13	ug/L			09/16/14 16:07	1
Dichlorodifluoromethane	ND	1.0	0.19				09/16/14 16:07	1
Ethyl ether	1.0	1.0	0.082	ug/L			09/16/14 16:07	1
Ethylbenzene	ND	1.0		ug/L			09/16/14 16:07	1

TestAmerica Pittsburgh

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TestAmerica Job ID: 180-36441-1

3

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2

TestAmerica Job ID: 180-36441-1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-3

Analyte

Sulfate

Date Collected: 09/05/14 10:30 Date Received: 09/06/14 09:15 Lab Sample ID: 180-36441-14

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		1.0	0.18	ug/L			09/16/14 16:07	1
Isopropylbenzene	ND		1.0	0.16	ug/L			09/16/14 16:07	1
Methyl acetate	ND		1.0	0.14	ug/L			09/16/14 16:07	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			09/16/14 16:07	1
Methylcyclohexane	ND		1.0	0.26	ug/L			09/16/14 16:07	1
Methylene Chloride	ND		1.0	0.13	ug/L			09/16/14 16:07	1
Styrene	ND		1.0	0.097	ug/L			09/16/14 16:07	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/16/14 16:07	1
Toluene	ND		1.0	0.15	ug/L			09/16/14 16:07	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/16/14 16:07	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			09/16/14 16:07	1
Trichloroethene	ND		1.0	0.14	ug/L			09/16/14 16:07	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/16/14 16:07	1
Vinyl chloride	ND		1.0	0.23	ug/L			09/16/14 16:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		64 - 135			-		09/16/14 16:07	1
4-Bromofluorobenzene (Surr)	103		70 - 118					09/16/14 16:07	1
Dibromofluoromethane (Surr)	105		70 - 128					09/16/14 16:07	1
Toluene-d8 (Surr)	106		71 - 118					09/16/14 16:07	1

Method: 8315A	- Carbonyl Compounds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	ND		50	5.0	ug/L		09/07/14 12:10	09/09/14 14:31	1
Method: In-Hou	se - Sulfonic Acids by LCMS/MS								B.: F

RL

5.0

MDL Unit

1.1 mg/L

Prepared

Analyzed

09/17/14 21:19

Result Qualifier

95

Method: In-House - Sulfonic Acids	B DY LUNIS/INI								
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	3100		200	200	ug/L		09/08/14 12:45	09/11/14 17:20	20
p-Phenolsulfonic acid	180		50	50	ug/L		09/08/14 12:45	09/11/14 21:48	5
Benzenesulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/11/14 21:48	5
Resorcinol	ND		50	50	ug/L		09/08/14 12:45	09/11/14 21:48	5
2,3',4-Trihydroxydiphenyl	ND		50	50	ug/L		09/08/14 12:45	09/11/14 21:48	5

Client Sample ID: SG-8

Lab Sample ID: 180-36441-15

Date Collected: 09/05/14 11:00

Matrix: Water

Date Collected: 09/05/14 11:00 Matrix: Water Date Received: 09/06/14 09:15

Analyte	Result Qua	llifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			09/16/14 18:59	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			09/16/14 18:59	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			09/16/14 18:59	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			09/16/14 18:59	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			09/16/14 18:59	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			09/16/14 18:59	1
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			09/16/14 18:59	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			09/16/14 18:59	1

TestAmerica Pittsburgh

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Dil Fac

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-15

TestAmerica Job ID: 180-36441-1

Client Sample ID: SG-8
Date Collected: 09/05/14 11:00

Toluene-d8 (Surr)

Analyte

Sulfate

Method: 300.0 - Anions, Ion Chromatography

Matrix: Water

Date Received: 09/06/14 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	2.6		1.0	0.15	ug/L			09/16/14 18:59	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			09/16/14 18:59	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			09/16/14 18:59	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			09/16/14 18:59	1
1,4-Dichlorobenzene	0.64	J	1.0	0.21	ug/L			09/16/14 18:59	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			09/16/14 18:59	1
2-Hexanone	ND		5.0	0.16	ug/L			09/16/14 18:59	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			09/16/14 18:59	1
Acetone	19		5.0	2.5	ug/L			09/16/14 18:59	1
Benzene	0.15	J	1.0	0.11	ug/L			09/16/14 18:59	1
Bromoform	ND		1.0	0.19	ug/L			09/16/14 18:59	1
Bromomethane	ND		1.0	0.31	ug/L			09/16/14 18:59	1
Carbon disulfide	ND		1.0	0.21	ug/L			09/16/14 18:59	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			09/16/14 18:59	1
Chlorobenzene	2.1		1.0	0.14	_			09/16/14 18:59	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			09/16/14 18:59	1
Chloroethane	ND		1.0	0.21	ug/L			09/16/14 18:59	
Chloroform	ND		1.0	0.17	ug/L			09/16/14 18:59	1
Chloromethane	ND		1.0	0.28	_			09/16/14 18:59	1
cis-1,2-Dichloroethene	ND		1.0	0.24				09/16/14 18:59	1
cis-1,3-Dichloropropene	ND		1.0	0.19				09/16/14 18:59	1
Cyclohexane	ND		1.0	0.25				09/16/14 18:59	1
Dichlorobromomethane	ND		1.0	0.13				09/16/14 18:59	1
Dichlorodifluoromethane	ND		1.0	0.19				09/16/14 18:59	1
Ethyl ether	1.1		1.0	0.082				09/16/14 18:59	1
Ethylbenzene	ND		1.0	0.23				09/16/14 18:59	1
1,2-Dibromoethane	ND		1.0	0.18	_			09/16/14 18:59	1
Isopropylbenzene	ND		1.0	0.16	_			09/16/14 18:59	1
Methyl acetate	ND		1.0	0.14				09/16/14 18:59	1
Methyl tert-butyl ether	ND		1.0	0.18				09/16/14 18:59	1
Methylcyclohexane	ND		1.0	0.26	_			09/16/14 18:59	1
Methylene Chloride	ND		1.0	0.13				09/16/14 18:59	1
Styrene	ND		1.0	0.097				09/16/14 18:59	1
Tetrachloroethene	ND		1.0	0.15	_			09/16/14 18:59	1
Toluene	ND		1.0	0.15				09/16/14 18:59	
trans-1,2-Dichloroethene	ND		1.0	0.13	_			09/16/14 18:59	1
trans-1,3-Dichloropropene	ND		1.0	0.17				09/16/14 18:59	1
Trichloroethene	ND		1.0	0.13				09/16/14 18:59	
Trichlorofluoromethane	ND		1.0	0.14	-			09/16/14 18:59	1
Vinyl chloride	ND ND		1.0	0.23	-			09/16/14 18:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		64 - 135			-		09/16/14 18:59	
4-Bromofluorobenzene (Surr)	105		70 - 118					09/16/14 18:59	1
Dibromofluoromethane (Surr)	103		70 - 128						

TestAmerica Pittsburgh

09/16/14 18:59

Analyzed

09/17/14 21:35

Prepared

RL

5.0

MDL Unit

1.1 mg/L

71 - 118

Result Qualifier

98

Dil Fac

3

5

7

9

10

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Date Received: 09/06/14 09:15

Lab Sample ID: 180-36441-15

TestAmerica Job ID: 180-36441-1

Client Sample ID: SG-8 Date Collected: 09/05/14 11:00

Matrix: Water

Dil Fac

Method: 8315A - Carbonyl Compounds (HPLC) RL MDL Unit Analyte Result Qualifier D Prepared Analyzed 50 09/07/14 12:10 09/09/14 14:42 Formaldehyde 8.1 J 5.0 ug/L

Method: In-House - Sulfonic Aci	ds by LCMS/MS							
Analyte	Result Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	1000	100	100	ug/L		09/08/14 12:45	09/11/14 18:21	10
p-Phenolsulfonic acid	550	50	50	ug/L		09/08/14 12:45	09/11/14 22:48	5
Benzenesulfonic acid	ND	50	50	ug/L		09/08/14 12:45	09/11/14 22:48	5
Resorcinol	300	50	50	ug/L		09/08/14 12:45	09/11/14 22:48	5
2,3',4-Trihydroxydiphenyl	ND	50	50	ug/L		09/08/14 12:45	09/11/14 22:48	5

Client Sample ID: SW-1 Lab Sample ID: 180-36441-16

Date Collected: 09/05/14 11:05 Matrix: Water Date Received: 09/06/14 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			09/15/14 18:28	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			09/15/14 18:28	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			09/15/14 18:28	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			09/15/14 18:28	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			09/15/14 18:28	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			09/15/14 18:28	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			09/15/14 18:28	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			09/15/14 18:28	1
1,2-Dichlorobenzene	1.7		1.0	0.15	ug/L			09/15/14 18:28	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			09/15/14 18:28	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			09/15/14 18:28	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			09/15/14 18:28	1
1,4-Dichlorobenzene	0.30	J	1.0	0.21	ug/L			09/15/14 18:28	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			09/15/14 18:28	1
2-Hexanone	ND		5.0	0.16	ug/L			09/15/14 18:28	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			09/15/14 18:28	1
Acetone	8.8		5.0	2.5	ug/L			09/15/14 18:28	1
Benzene	ND		1.0	0.11	ug/L			09/15/14 18:28	1
Bromoform	ND		1.0	0.19	ug/L			09/15/14 18:28	1
Bromomethane	ND		1.0	0.31	ug/L			09/15/14 18:28	1
Carbon disulfide	ND		1.0	0.21	ug/L			09/15/14 18:28	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			09/15/14 18:28	1
Chlorobenzene	0.70	J	1.0	0.14	ug/L			09/15/14 18:28	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			09/15/14 18:28	1
Chloroethane	ND		1.0	0.21	ug/L			09/15/14 18:28	1
Chloroform	ND		1.0	0.17	ug/L			09/15/14 18:28	1
Chloromethane	ND		1.0	0.28	ug/L			09/15/14 18:28	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			09/15/14 18:28	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			09/15/14 18:28	1
Cyclohexane	ND		1.0	0.25	ug/L			09/15/14 18:28	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			09/15/14 18:28	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			09/15/14 18:28	1
Ethyl ether	0.54	J	1.0	0.082	ug/L			09/15/14 18:28	1
Ethylbenzene	ND		1.0	0.23	ug/L			09/15/14 18:28	1

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-1

Lab Sample ID: 180-36441-16

TestAmerica Job ID: 180-36441-1

Matrix: Water

Date Collected: 09/05/14 11:05 Date Received: 09/06/14 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		1.0	0.18	ug/L			09/15/14 18:28	1
Isopropylbenzene	ND		1.0	0.16	ug/L			09/15/14 18:28	1
Methyl acetate	ND		1.0	0.14	ug/L			09/15/14 18:28	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			09/15/14 18:28	1
Methylcyclohexane	ND		1.0	0.26	ug/L			09/15/14 18:28	1
Methylene Chloride	ND		1.0	0.13	ug/L			09/15/14 18:28	1
Styrene	ND		1.0	0.097	ug/L			09/15/14 18:28	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/15/14 18:28	1
Toluene	ND		1.0	0.15	ug/L			09/15/14 18:28	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/15/14 18:28	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			09/15/14 18:28	1
Trichloroethene	ND		1.0	0.14	ug/L			09/15/14 18:28	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/15/14 18:28	1
Vinyl chloride	ND		1.0	0.23	ug/L			09/15/14 18:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		64 - 135					09/15/14 18:28	1
4-Bromofluorobenzene (Surr)	103		70 - 118					09/15/14 18:28	1
Dibromofluoromethane (Surr)	101		70 - 128					09/15/14 18:28	1
Toluene-d8 (Surr)	106		71 - 118					09/15/14 18:28	1
- Method: 300.0 - Anions, Ion C	hromatography								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	92		5.0	1.1	mg/L			09/17/14 21:50	5
Method: 8315A - Carbonyl Co	mpounds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	14	J	50	5.0	ug/L		09/07/14 12:10	09/09/14 14:54	1

p-Phenolsulfonic acid ND 50 5 50 ug/L 09/08/14 12:45 09/12/14 00:18 Benzenesulfonic acid ND 50 09/08/14 12:45 5 50 ug/L 09/12/14 00:18 Resorcinol ND 50 09/08/14 12:45 09/12/14 00:18 5 50 ug/L 2,3',4-Trihydroxydiphenyl ND 50 09/08/14 12:45 09/12/14 00:18 5 50 ug/L

RL

50

RL Unit

0.14 ug/L

50 ug/L

Result Qualifier

100

ND

Client Sample ID: SG-2
Date Collected: 09/05/14 11:45

1,2-Dibromo-3-Chloropropane

Date Received: 09/06/14 09:15

m-Benzenedisulfonic acid

Analyte

Method: In-House - Sulfonic Acids by LCMS/MS

Lab Sample ID: 180-36441-17

Analyzed

09/12/14 00:18

D

Prepared

09/08/14 12:45

Matrix: Water

Dil Fac

5

Method: 8260C - Volatile Organic	Compounds (GC/MS)						
Analyte	Result Qualifier	RL	MDL Uni	nit D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND -	1.0	0.29 ug/	ı/L		09/15/14 18:52	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20 ug/	ı/L		09/15/14 18:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32 ug/	ı/L		09/15/14 18:52	1
1,1,2-Trichloroethane	ND	1.0	0.20 ug/	i/L		09/15/14 18:52	1
1,1-Dichloroethane	ND	1.0	0.12 ug/	ı/L		09/15/14 18:52	1
1,1-Dichloroethene	ND	1.0	0.30 ug/	ı/L		09/15/14 18:52	1
1,2,4-Trichlorobenzene	ND	1.0	0.27 ug/			09/15/14 18:52	1

TestAmerica Pittsburgh

09/15/14 18:52

1.0

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-17

TestAmerica Job ID: 180-36441-1

Matrix: Water

Client Sample ID: SG-2

Date Collected: 09/05/14 11:45 Date Received: 09/06/14 09:15

Method: 300.0 - Anions, Ion Chromatography

Analyte

Sulfate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	1.2		1.0	0.15	ug/L			09/15/14 18:52	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			09/15/14 18:52	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			09/15/14 18:52	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			09/15/14 18:52	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			09/15/14 18:52	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			09/15/14 18:52	1
2-Hexanone	ND		5.0	0.16	ug/L			09/15/14 18:52	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			09/15/14 18:52	1
Acetone	6.3		5.0	2.5	ug/L			09/15/14 18:52	1
Benzene	0.11	J	1.0	0.11	ug/L			09/15/14 18:52	1
Bromoform	ND		1.0	0.19	ug/L			09/15/14 18:52	1
Bromomethane	ND		1.0	0.31	ug/L			09/15/14 18:52	1
Carbon disulfide	ND		1.0	0.21	ug/L			09/15/14 18:52	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			09/15/14 18:52	1
Chlorobenzene	0.34	J	1.0	0.14	ug/L			09/15/14 18:52	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			09/15/14 18:52	1
Chloroethane	ND		1.0	0.21	ug/L			09/15/14 18:52	1
Chloroform	ND		1.0	0.17	ug/L			09/15/14 18:52	1
Chloromethane	ND		1.0	0.28	ug/L			09/15/14 18:52	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			09/15/14 18:52	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			09/15/14 18:52	1
Cyclohexane	ND		1.0	0.25	ug/L			09/15/14 18:52	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			09/15/14 18:52	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			09/15/14 18:52	1
Ethyl ether	0.31	J	1.0	0.082	ug/L			09/15/14 18:52	1
Ethylbenzene	ND		1.0	0.23	ug/L			09/15/14 18:52	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			09/15/14 18:52	1
Isopropylbenzene	ND		1.0	0.16	ug/L			09/15/14 18:52	1
Methyl acetate	ND		1.0	0.14	ug/L			09/15/14 18:52	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			09/15/14 18:52	1
Methylcyclohexane	ND		1.0	0.26	ug/L			09/15/14 18:52	1
Methylene Chloride	ND		1.0	0.13	ug/L			09/15/14 18:52	1
Styrene	ND		1.0	0.097	ug/L			09/15/14 18:52	1
Tetrachloroethene	ND		1.0	0.15				09/15/14 18:52	1
Toluene	ND		1.0	0.15				09/15/14 18:52	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/15/14 18:52	1
trans-1,3-Dichloropropene	ND		1.0	0.15				09/15/14 18:52	1
Trichloroethene	ND		1.0	0.14	ug/L			09/15/14 18:52	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/15/14 18:52	1
Vinyl chloride	ND		1.0	0.23	ug/L			09/15/14 18:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		64 - 135			-		09/15/14 18:52	1
4-Bromofluorobenzene (Surr)	108		70 - 118					09/15/14 18:52	1
Dibromofluoromethane (Surr)	100		70 - 128					09/15/14 18:52	1
Toluene-d8 (Surr)	110		71 - 118					09/15/14 18:52	1

TestAmerica Pittsburgh

Analyzed

09/17/14 22:06

Prepared

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RL

5.0

MDL Unit

1.1 mg/L

Result Qualifier

95

10/9/2014

Dil Fac

3

4

e S

40

11

Client: ARCADIS U.S. Inc

Benzenesulfonic acid

2,3',4-Trihydroxydiphenyl

Resorcinol

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-2 Lab Sample ID: 180-36441-17 Matrix: Water

Date Collected: 09/05/14 11:45

ND

ND

ND

Date Received: 09/06/14 09:15

Method: 63 13A - Carbonyi Com	pourius (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	7.8	J	50	5.0	ug/L		09/07/14 12:10	09/09/14 15:06	1
Method: In-House - Sulfonic Ac	ids by LCMS/MS	3							
Analyte	•	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	110		50	50	ug/L		09/08/14 12:45	09/12/14 01:18	5
p-Phenolsulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/12/14 01:18	5
p-i fierioisulionio acid	ND		30	50	ug/L		03/00/14 12.43	03/12/14 01.10	J

Client Sample ID: SH-1 Lab Sample ID: 180-36441-18

Date Collected: 09/05/14 12:15 Matrix: Water Date Received: 09/06/14 09:15

50

50

50

50 ug/L

50 ug/L

50 ug/L

Analyte	Result Qu	alifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			09/15/14 19:16	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			09/15/14 19:16	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			09/15/14 19:16	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			09/15/14 19:16	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			09/15/14 19:16	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			09/15/14 19:16	1
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			09/15/14 19:16	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			09/15/14 19:16	1
1,2-Dichlorobenzene	ND	1.0	0.15	ug/L			09/15/14 19:16	1
1,2-Dichloroethane	ND	1.0	0.21	ug/L			09/15/14 19:16	1
1,2-Dichloropropane	ND	1.0	0.095	ug/L			09/15/14 19:16	1
1,3-Dichlorobenzene	ND	1.0	0.11	ug/L			09/15/14 19:16	1
1,4-Dichlorobenzene	ND	1.0	0.21	ug/L			09/15/14 19:16	1
2-Butanone (MEK)	ND	5.0	0.55	ug/L			09/15/14 19:16	1
2-Hexanone	ND	5.0	0.16	ug/L			09/15/14 19:16	1
4-Methyl-2-pentanone (MIBK)	ND	5.0	0.53	ug/L			09/15/14 19:16	1
Acetone	5.7	5.0	2.5	ug/L			09/15/14 19:16	1
Benzene	0.11 J	1.0	0.11	ug/L			09/15/14 19:16	1
Bromoform	ND	1.0	0.19	ug/L			09/15/14 19:16	1
Bromomethane	ND	1.0	0.31	ug/L			09/15/14 19:16	1
Carbon disulfide	ND	1.0	0.21	ug/L			09/15/14 19:16	1
Carbon tetrachloride	ND	1.0	0.14	ug/L			09/15/14 19:16	1
Chlorobenzene	ND	1.0	0.14	ug/L			09/15/14 19:16	1
Chlorodibromomethane	ND	1.0	0.14	ug/L			09/15/14 19:16	1
Chloroethane	ND	1.0	0.21	ug/L			09/15/14 19:16	1
Chloroform	ND	1.0	0.17	ug/L			09/15/14 19:16	1
Chloromethane	ND	1.0	0.28	ug/L			09/15/14 19:16	1
cis-1,2-Dichloroethene	ND	1.0	0.24	ug/L			09/15/14 19:16	1
cis-1,3-Dichloropropene	ND	1.0	0.19	ug/L			09/15/14 19:16	1
Cyclohexane	ND	1.0	0.25	ug/L			09/15/14 19:16	1
Dichlorobromomethane	ND	1.0	0.13	ug/L			09/15/14 19:16	1
Dichlorodifluoromethane	ND	1.0	0.19	ug/L			09/15/14 19:16	1
Ethyl ether	0.20 J	1.0	0.082	ug/L			09/15/14 19:16	1
Ethylbenzene	ND	1.0	0.23	ug/L			09/15/14 19:16	1

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TestAmerica Job ID: 180-36441-1

09/12/14 01:18

09/12/14 01:18

09/12/14 01:18

09/08/14 12:45

09/08/14 12:45

09/08/14 12:45

2

TestAmerica Job ID: 180-36441-1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SH-1
Date Collected: 09/05/14 12:15

Date Received: 09/06/14 09:15

Method: 300.0 - Anions, Ion Chromatography

Date Received: 09/06/14 09:15

Analyte

Lab Sample ID: 180-36441-18

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		1.0	0.18	ug/L			09/15/14 19:16	1
Isopropylbenzene	ND		1.0	0.16	ug/L			09/15/14 19:16	1
Methyl acetate	ND		1.0	0.14	ug/L			09/15/14 19:16	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			09/15/14 19:16	1
Methylcyclohexane	ND		1.0	0.26	ug/L			09/15/14 19:16	1
Methylene Chloride	ND		1.0	0.13	ug/L			09/15/14 19:16	1
Styrene	ND		1.0	0.097	ug/L			09/15/14 19:16	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/15/14 19:16	1
Toluene	ND		1.0	0.15	ug/L			09/15/14 19:16	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/15/14 19:16	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			09/15/14 19:16	1
Trichloroethene	ND		1.0	0.14	ug/L			09/15/14 19:16	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/15/14 19:16	1
Vinyl chloride	ND		1.0	0.23	ug/L			09/15/14 19:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		64 - 135			-		09/15/14 19:16	1
4-Bromofluorobenzene (Surr)	109		70 - 118					09/15/14 19:16	1
Dibromofluoromethane (Surr)	98		70 - 128					09/15/14 19:16	1
Toluene-d8 (Surr)	109		71 - 118					09/15/14 19:16	1

Sulfate	90		5.0	1.1	mg/L			09/17/14 22:52	5
– Method: 8315A - Carbonyl Compou	unds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	15	J	50	5.0	ug/L		09/07/14 12:10	09/09/14 15:18	1

MDL Unit

Prepared

Analyzed

Result Qualifier

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	110		50	50	ug/L		09/08/14 12:45	09/12/14 02:17	5
p-Phenolsulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/12/14 02:17	5
Benzenesulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/12/14 02:17	5
Resorcinol	ND		50	50	ug/L		09/08/14 12:45	09/12/14 02:17	5
2,3',4-Trihydroxydiphenyl	ND		50	50	ug/L		09/08/14 12:45	09/12/14 02:17	5

Client Sample ID: SG-1

Date Collected: 09/05/14 12:25

Lab Sample ID: 180-36441-19

Matrix: Water

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND -	1.0	0.29	ug/L			09/15/14 20:03	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			09/15/14 20:03	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			09/15/14 20:03	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			09/15/14 20:03	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			09/15/14 20:03	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			09/15/14 20:03	1
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			09/15/14 20:03	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			09/15/14 20:03	1

TestAmerica Pittsburgh

4

6

8

10

11

12

L C

Dil Fac

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-19

TestAmerica Job ID: 180-36441-1

Matrix: Water

Client Sample ID: SG-1 Date Collected: 09/05/14 12:25

Analyte

Sulfate

Date Received: 09/06/14 09:15

Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			09/15/14 20:03	
1,2-Dichloroethane	ND		1.0	0.21	ug/L			09/15/14 20:03	
1,2-Dichloropropane	ND		1.0	0.095	ug/L			09/15/14 20:03	
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			09/15/14 20:03	
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			09/15/14 20:03	
2-Butanone (MEK)	ND		5.0	0.55	ug/L			09/15/14 20:03	
2-Hexanone	ND		5.0	0.16	ug/L			09/15/14 20:03	
1-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			09/15/14 20:03	
Acetone	5.9		5.0	2.5	ug/L			09/15/14 20:03	
Benzene	0.13	J	1.0	0.11	ug/L			09/15/14 20:03	
Bromoform	ND		1.0	0.19	ug/L			09/15/14 20:03	
Bromomethane	ND		1.0	0.31	-			09/15/14 20:03	
Carbon disulfide	ND		1.0	0.21	_			09/15/14 20:03	
Carbon tetrachloride	ND		1.0	0.14				09/15/14 20:03	
Chlorobenzene	ND		1.0	0.14	-			09/15/14 20:03	
Chlorodibromomethane	ND		1.0	0.14	_			09/15/14 20:03	
Chloroethane	ND ND		1.0	0.14				09/15/14 20:03	
Chloroform	ND		1.0		_			09/15/14 20:03	
	ND ND		1.0	0.17	-				
Chloromethane				0.28				09/15/14 20:03	
cis-1,2-Dichloroethene	ND		1.0	0.24	_			09/15/14 20:03	
sis-1,3-Dichloropropene	ND		1.0	0.19	-			09/15/14 20:03	
Cyclohexane	ND		1.0	0.25				09/15/14 20:03	
Dichlorobromomethane	ND		1.0	0.13				09/15/14 20:03	
Dichlorodifluoromethane	ND		1.0	0.19				09/15/14 20:03	
Ethyl ether	ND		1.0	0.082	ug/L			09/15/14 20:03	
Ethylbenzene	ND		1.0	0.23	-			09/15/14 20:03	
I,2-Dibromoethane	ND		1.0	0.18	ug/L			09/15/14 20:03	
sopropylbenzene	ND		1.0	0.16	ug/L			09/15/14 20:03	
Methyl acetate	ND		1.0	0.14	ug/L			09/15/14 20:03	
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			09/15/14 20:03	
Methylcyclohexane	ND		1.0	0.26	ug/L			09/15/14 20:03	
Methylene Chloride	ND		1.0	0.13	ug/L			09/15/14 20:03	
Styrene	ND		1.0	0.097	ug/L			09/15/14 20:03	
Tetrachloroethene	ND		1.0	0.15	ug/L			09/15/14 20:03	
Toluene	ND		1.0	0.15	ug/L			09/15/14 20:03	
rans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/15/14 20:03	
rans-1,3-Dichloropropene	ND		1.0	0.15				09/15/14 20:03	
richloroethene	ND		1.0	0.14				09/15/14 20:03	
Frichlorofluoromethane	ND		1.0	0.20				09/15/14 20:03	
/inyl chloride	ND		1.0	0.23	_			09/15/14 20:03	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	103		64 - 135			_		09/15/14 20:03	
1-Bromofluorobenzene (Surr)	102		70 - 118					09/15/14 20:03	
Dibromofluoromethane (Surr)	105		70 - 128					09/15/14 20:03	
Toluene-d8 (Surr)	106		71 - 118					09/15/14 20:03	

TestAmerica Pittsburgh

Analyzed

09/17/14 23:08

Prepared

RL

5.0

MDL Unit

1.1 mg/L

Result Qualifier

93

Dil Fac

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-19

TestAmerica Job ID: 180-36441-1

Matrix: Water

Client Sample ID: SG-1 Date Collected: 09/05/14 12:25

Date Received: 09/06/14 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	9.0	J	50	5.0	ug/L		09/07/14 12:10	09/09/14 15:30	1
Method: In-House - Sulfonic Ac	ids by LCMS/MS	3							
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	120		50	50	ug/L		09/08/14 12:45	09/12/14 15:37	- 5
p-PhenoIsulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/12/14 15:37	5
Benzenesulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/12/14 15:37	5
Resorcinol	ND		50	50	ug/L		09/08/14 12:45	09/12/14 15:37	5
2,3',4-Trihydroxydiphenyl	ND		50	50	ug/L		09/08/14 12:45	09/12/14 15:37	5

Client Sample ID: EB090514 Lab Sample ID: 180-36441-20

Date Collected: 09/05/14 12:30 **Matrix: Water**

Date Received: 09/06/14 09:15

Analyte	Result Qual	ifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			09/15/14 20:27	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			09/15/14 20:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			09/15/14 20:27	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			09/15/14 20:27	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			09/15/14 20:27	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			09/15/14 20:27	1
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			09/15/14 20:27	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			09/15/14 20:27	1
1,2-Dichlorobenzene	ND	1.0	0.15	ug/L			09/15/14 20:27	1
1,2-Dichloroethane	ND	1.0	0.21	ug/L			09/15/14 20:27	1
1,2-Dichloropropane	ND	1.0	0.095	ug/L			09/15/14 20:27	1
1,3-Dichlorobenzene	ND	1.0	0.11	ug/L			09/15/14 20:27	1
1,4-Dichlorobenzene	ND	1.0	0.21	ug/L			09/15/14 20:27	1
2-Butanone (MEK)	ND	5.0	0.55	ug/L			09/15/14 20:27	1
2-Hexanone	ND	5.0	0.16	ug/L			09/15/14 20:27	1
4-Methyl-2-pentanone (MIBK)	ND	5.0	0.53	ug/L			09/15/14 20:27	1
Acetone	5.3	5.0	2.5	ug/L			09/15/14 20:27	1
Benzene	ND	1.0	0.11	ug/L			09/15/14 20:27	1
Bromoform	ND	1.0	0.19	ug/L			09/15/14 20:27	1
Bromomethane	ND	1.0	0.31	ug/L			09/15/14 20:27	1
Carbon disulfide	ND	1.0	0.21	ug/L			09/15/14 20:27	1
Carbon tetrachloride	ND	1.0	0.14	ug/L			09/15/14 20:27	1
Chlorobenzene	ND	1.0	0.14	ug/L			09/15/14 20:27	1
Chlorodibromomethane	ND	1.0	0.14	ug/L			09/15/14 20:27	1
Chloroethane	ND	1.0	0.21	ug/L			09/15/14 20:27	1
Chloroform	ND	1.0	0.17	ug/L			09/15/14 20:27	1
Chloromethane	ND	1.0	0.28	ug/L			09/15/14 20:27	1
cis-1,2-Dichloroethene	ND	1.0	0.24	ug/L			09/15/14 20:27	1
cis-1,3-Dichloropropene	ND	1.0	0.19	ug/L			09/15/14 20:27	1
Cyclohexane	ND	1.0	0.25	ug/L			09/15/14 20:27	1
Dichlorobromomethane	ND	1.0	0.13	ug/L			09/15/14 20:27	1
Dichlorodifluoromethane	ND	1.0		ug/L			09/15/14 20:27	1
Ethyl ether	ND	1.0	0.082	ug/L			09/15/14 20:27	1
Ethylbenzene	ND	1.0		ug/L			09/15/14 20:27	1

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-20

TestAmerica Job ID: 180-36441-1

Matrix: Water

Client Sample ID: EB090514 Date Collected: 09/05/14 12:30

Date Received: 09/06/14 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		1.0	0.18	ug/L			09/15/14 20:27	1
Isopropylbenzene	ND		1.0	0.16	ug/L			09/15/14 20:27	1
Methyl acetate	ND		1.0	0.14	ug/L			09/15/14 20:27	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			09/15/14 20:27	1
Methylcyclohexane	ND		1.0	0.26	ug/L			09/15/14 20:27	1
Methylene Chloride	ND		1.0	0.13	ug/L			09/15/14 20:27	1
Styrene	ND		1.0	0.097	ug/L			09/15/14 20:27	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/15/14 20:27	1
Toluene	ND		1.0	0.15	ug/L			09/15/14 20:27	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/15/14 20:27	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			09/15/14 20:27	1
Trichloroethene	ND		1.0	0.14	ug/L			09/15/14 20:27	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/15/14 20:27	1
Vinyl chloride	ND		1.0	0.23	ug/L			09/15/14 20:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		64 - 135			-		09/15/14 20:27	1
4-Bromofluorobenzene (Surr)	108		70 - 118					09/15/14 20:27	1
Dibromofluoromethane (Surr)	101		70 - 128					09/15/14 20:27	1
Toluene-d8 (Surr)	111		71 - 118					09/15/14 20:27	1

Method: 8315A - Carbonyl Compo	unds (HPLC)							
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde		50	5.0	ug/L		09/07/14 12:10	09/09/14 15:53	1

RL

1.0

MDL Unit

0.21 mg/L

Prepared

Analyzed

09/17/14 23:24

Dil Fac

Result Qualifier

ND

Method: In-House - Sulfonic Aci	ds by LCMS/MS	3							
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/12/14 16:37	5
p-Phenolsulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/12/14 16:37	5
Benzenesulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/12/14 16:37	5
Resorcinol	ND		50	50	ug/L		09/08/14 12:45	09/12/14 16:37	5
2,3',4-Trihydroxydiphenyl	ND		50	50	ug/L		09/08/14 12:45	09/12/14 16:37	5

Client Sample ID: DUP090514 Lab Sample ID: 180-36441-21 Date Collected: 09/05/14 00:00 **Matrix: Water**

Date Received: 09/06/14 09:15

Analyte

Sulfate

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND -	1.0	0.29	ug/L			09/16/14 19:23	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			09/16/14 19:23	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			09/16/14 19:23	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			09/16/14 19:23	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			09/16/14 19:23	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			09/16/14 19:23	1
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			09/16/14 19:23	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			09/16/14 19:23	1

TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-21

Client Sample ID: DUP090514 Date Collected: 09/05/14 00:00

Method: 300.0 - Anions, Ion Chromatography

Analyte

Sulfate

Date Received: 09/06/14 09:15

Matrix: Water

TestAmerica Job ID: 180-36441-1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,2-Dichlorobenzene	1.8		1.0	0.15	ug/L			09/16/14 19:23	
1,2-Dichloroethane	ND		1.0	0.21	ug/L			09/16/14 19:23	
1,2-Dichloropropane	ND		1.0	0.095	ug/L			09/16/14 19:23	
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			09/16/14 19:23	
1,4-Dichlorobenzene	0.38	J	1.0	0.21	ug/L			09/16/14 19:23	
2-Butanone (MEK)	ND		5.0	0.55	ug/L			09/16/14 19:23	
2-Hexanone	ND		5.0	0.16	ug/L			09/16/14 19:23	
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			09/16/14 19:23	
Acetone	5.5		5.0	2.5	ug/L			09/16/14 19:23	
Benzene	0.15	J	1.0	0.11	ug/L			09/16/14 19:23	
Bromoform	ND		1.0	0.19	ug/L			09/16/14 19:23	
Bromomethane	ND		1.0	0.31	ug/L			09/16/14 19:23	
Carbon disulfide	ND		1.0	0.21	ug/L			09/16/14 19:23	
Carbon tetrachloride	ND		1.0	0.14	ug/L			09/16/14 19:23	
Chlorobenzene	1.1		1.0	0.14	ug/L			09/16/14 19:23	
Chlorodibromomethane	ND		1.0	0.14	ug/L			09/16/14 19:23	
Chloroethane	ND		1.0	0.21	ug/L			09/16/14 19:23	
Chloroform	ND		1.0	0.17	ug/L			09/16/14 19:23	
Chloromethane	ND		1.0	0.28	ug/L			09/16/14 19:23	
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			09/16/14 19:23	
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			09/16/14 19:23	
Cyclohexane	ND		1.0	0.25	ug/L			09/16/14 19:23	
Dichlorobromomethane	ND		1.0	0.13	ug/L			09/16/14 19:23	
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			09/16/14 19:23	
Ethyl ether	0.90	J	1.0	0.082	ug/L			09/16/14 19:23	
Ethylbenzene	ND		1.0	0.23	ug/L			09/16/14 19:23	
1,2-Dibromoethane	ND		1.0	0.18	ug/L			09/16/14 19:23	
Isopropylbenzene	ND		1.0	0.16	ug/L			09/16/14 19:23	
Methyl acetate	ND		1.0	0.14	ug/L			09/16/14 19:23	
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			09/16/14 19:23	
Methylcyclohexane	ND		1.0	0.26	ug/L			09/16/14 19:23	
Methylene Chloride	ND		1.0	0.13	ug/L			09/16/14 19:23	
Styrene	ND		1.0	0.097	ug/L			09/16/14 19:23	
Tetrachloroethene	ND		1.0	0.15	ug/L			09/16/14 19:23	
Toluene	ND		1.0	0.15	ug/L			09/16/14 19:23	
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/16/14 19:23	
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			09/16/14 19:23	
Trichloroethene	ND		1.0	0.14				09/16/14 19:23	
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/16/14 19:23	
Vinyl chloride	ND		1.0	0.23	ug/L			09/16/14 19:23	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	103		64 - 135			_		09/16/14 19:23	
4-Bromofluorobenzene (Surr)	108		70 - 118					09/16/14 19:23	
Dibromofluoromethane (Surr)	102		70 ₋ 128					09/16/14 19:23	

TestAmerica Pittsburgh

Analyzed

09/17/14 23:39

Prepared

RL

5.0

MDL Unit

1.1 mg/L

Result Qualifier

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-21

TestAmerica Job ID: 180-36441-1

Matrix: Water

Matrix: Water

Client Sample ID: DUP090514

Date Collected: 09/05/14 00:00 Date Received: 09/06/14 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	ND		50	5.0	ug/L		09/07/14 12:10	09/09/14 16:05	1
- Method: In-House - Sulfonic Ac	ids by LCMS/MS	3							
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	3200		250	250	ug/L		09/08/14 12:45	09/11/14 07:07	25
p-Phenolsulfonic acid	240		50	50	ug/L		09/08/14 12:45	09/12/14 17:36	5
Benzenesulfonic acid	51		50	50	ug/L		09/08/14 12:45	09/12/14 17:36	5
Resorcinol	ND		50	50	ug/L		09/08/14 12:45	09/12/14 17:36	5
2,3',4-Trihydroxydiphenyl	ND		50	50	ug/L		09/08/14 12:45	09/12/14 17:36	5

Client Sample ID: TRIP BLANKS Lab Sample ID: 180-36441-22

Date Collected: 09/05/14 00:00

Date Received: 09/06/14 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			09/15/14 13:37	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			09/15/14 13:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			09/15/14 13:37	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			09/15/14 13:37	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			09/15/14 13:37	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			09/15/14 13:37	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			09/15/14 13:37	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			09/15/14 13:37	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			09/15/14 13:37	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			09/15/14 13:37	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			09/15/14 13:37	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			09/15/14 13:37	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			09/15/14 13:37	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			09/15/14 13:37	1
2-Hexanone	ND		5.0	0.16	ug/L			09/15/14 13:37	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			09/15/14 13:37	1
Acetone	12		5.0	2.5	ug/L			09/15/14 13:37	1
Benzene	ND		1.0	0.11	ug/L			09/15/14 13:37	1
Bromoform	ND		1.0	0.19	ug/L			09/15/14 13:37	1
Bromomethane	ND		1.0	0.31	ug/L			09/15/14 13:37	1
Carbon disulfide	ND		1.0	0.21	ug/L			09/15/14 13:37	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			09/15/14 13:37	1
Chlorobenzene	ND		1.0	0.14	ug/L			09/15/14 13:37	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			09/15/14 13:37	1
Chloroethane	ND		1.0	0.21	ug/L			09/15/14 13:37	1
Chloroform	ND		1.0	0.17	ug/L			09/15/14 13:37	1
Chloromethane	ND		1.0	0.28	ug/L			09/15/14 13:37	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			09/15/14 13:37	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			09/15/14 13:37	1
Cyclohexane	ND		1.0	0.25	ug/L			09/15/14 13:37	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			09/15/14 13:37	1
Dichlorodifluoromethane	ND		1.0	0.19				09/15/14 13:37	1
Ethyl ether	ND		1.0	0.082				09/15/14 13:37	1
Ethylbenzene	ND		1.0	0.23				09/15/14 13:37	1

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-22

TestAmerica Job ID: 180-36441-1

Matrix: Water

Client Sample ID: TRIP BLANKS

Date Collected: 09/05/14 00:00 Date Received: 09/06/14 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		1.0	0.18	ug/L			09/15/14 13:37	1
Isopropylbenzene	ND		1.0	0.16	ug/L			09/15/14 13:37	1
Methyl acetate	ND		1.0	0.14	ug/L			09/15/14 13:37	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			09/15/14 13:37	1
Methylcyclohexane	ND		1.0	0.26	ug/L			09/15/14 13:37	1
Methylene Chloride	0.68	J	1.0	0.13	ug/L			09/15/14 13:37	1
Styrene	ND		1.0	0.097	ug/L			09/15/14 13:37	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/15/14 13:37	1
Toluene	ND		1.0	0.15	ug/L			09/15/14 13:37	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/15/14 13:37	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			09/15/14 13:37	1
Trichloroethene	ND		1.0	0.14	ug/L			09/15/14 13:37	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/15/14 13:37	1
Vinyl chloride	ND		1.0	0.23	ug/L			09/15/14 13:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		64 - 135			-		09/15/14 13:37	1
4-Bromofluorobenzene (Surr)	100		70 - 118					09/15/14 13:37	1
Dibromofluoromethane (Surr)	103		70 - 128					09/15/14 13:37	1
Toluene-d8 (Surr)	104		71 - 118					09/15/14 13:37	1

QC Sample Results

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-117277/1-A

Matrix: Solid

Trichloroethene

Vinyl chloride

Trichlorofluoromethane

Analysis Batch: 117276

Client Sample ID: Method Blank Prep Type: Total/NA Prep Batch: 117277

мв мв Qualifier RLMDL Unit D Dil Fac Analyte Result Prepared Analyzed 1,1,1-Trichloroethane ND 5.0 0.49 ug/Kg 09/08/14 04:18 09/08/14 05:59 1,1,2,2-Tetrachloroethane ND 5.0 09/08/14 04:18 09/08/14 05:59 0.72 ug/Kg 1,1,2-Trichloro-1,2,2-trifluoroethane ND 5.0 ug/Kg 09/08/14 04:18 09/08/14 05:59 1,1,2-Trichloroethane ND 5.0 0.83 ug/Kg 09/08/14 04:18 09/08/14 05:59 1,1-Dichloroethane ND 5.0 0.58 ug/Kg 09/08/14 04:18 09/08/14 05:59 1,1-Dichloroethene ND 5.0 0.85 ug/Kg 09/08/14 04:18 09/08/14 05:59 ND 5.0 1,2,4-Trichlorobenzene 88.0 ug/Kg 09/08/14 04:18 09/08/14 05:59 1,2-Dibromo-3-Chloropropane ND 5.0 0.75 ug/Kg 09/08/14 04:18 09/08/14 05:59 ND ug/Kg 09/08/14 04:18 1,2-Dichlorobenzene 5.0 0.80 09/08/14 05:59 ND 1,2-Dichloroethane 5.0 0.61 ug/Kg 09/08/14 04:18 09/08/14 05:59 1,2-Dichloropropane ND 5.0 0.54 ug/Kg 09/08/14 04:18 09/08/14 05:59 1,3-Dichlorobenzene ND 5.0 0.66 ug/Kg 09/08/14 04:18 09/08/14 05:59 1 4-Dichlorobenzene ND 5.0 0.64 09/08/14 04:18 09/08/14 05:59 ug/Kg 2-Butanone (MEK) ND 5.0 0.88 09/08/14 04:18 09/08/14 05:59 ug/Kg 2-Hexanone ND 5.0 09/08/14 04:18 09/08/14 05:59 0.69 ug/Kg 4-Methyl-2-pentanone (MIBK) ND 5.0 0.65 ug/Kg 09/08/14 04:18 09/08/14 05:59 Acetone ND 20 09/08/14 04:18 09/08/14 05:59 5.0 ug/Kg Benzene ND 5.0 0.68 ug/Kg 09/08/14 04:18 09/08/14 05:59 Bromoform ND 5.0 0.44 ug/Kg 09/08/14 04:18 09/08/14 05:59 ND Bromomethane 5.0 0.74 ug/Kg 09/08/14 04:18 09/08/14 05:59 Carbon disulfide ND 5.0 0.51 ug/Kg 09/08/14 04:18 09/08/14 05:59 ND Carbon tetrachloride 5.0 0.45 ug/Kg 09/08/14 04:18 09/08/14 05:59 Chlorobenzene ND 5.0 0.76 ug/Kg 09/08/14 04:18 09/08/14 05:59 Chlorodibromomethane ND 5.0 0.71 ug/Kg 09/08/14 04:18 09/08/14 05:59 Chloroethane ND 5.0 1.5 ug/Kg 09/08/14 04:18 09/08/14 05:59 Chloroform ND 5.0 0.58 ug/Kg 09/08/14 04:18 09/08/14 05:59 Chloromethane ND 5.0 0.85 ug/Kg 09/08/14 04:18 09/08/14 05:59 cis-1,2-Dichloroethene ND 5.0 0.70 09/08/14 04:18 09/08/14 05:59 ug/Kg cis-1,3-Dichloropropene ND 5.0 0.68 ug/Kg 09/08/14 04:18 09/08/14 05:59 ND 5.0 09/08/14 04:18 09/08/14 05:59 Cyclohexane 0.37 ug/Kg Dichlorobromomethane ND 5.0 0.56 ug/Kg 09/08/14 04:18 09/08/14 05:59 Dichlorodifluoromethane ND 5.0 0.67 ua/Ka 09/08/14 04:18 09/08/14 05:59 Ethyl ether ND 5.0 0.59 ug/Kg 09/08/14 04:18 09/08/14 05:59 Ethylbenzene ND 5.0 0.64 ug/Kg 09/08/14 04:18 09/08/14 05:59 ND 1,2-Dibromoethane 5.0 0.86 ug/Kg 09/08/14 04:18 09/08/14 05:59 ND 5.0 Isopropylbenzene 0.68 ug/Kg 09/08/14 04:18 09/08/14 05:59 ND 5.0 0.90 09/08/14 04:18 09/08/14 05:59 Methyl acetate ug/Kg 09/08/14 04:18 09/08/14 05:59 Methyl tert-butyl ether ND 5.0 0.75 ug/Kg ND 09/08/14 04:18 Methylcyclohexane 5.0 0.73 ug/Kg 09/08/14 05:59 Methylene Chloride ND 5.0 0.67 ug/Kg 09/08/14 04:18 09/08/14 05:59 Styrene ND 5.0 0.71 09/08/14 04:18 09/08/14 05:59 ug/Kg Tetrachloroethene ND 5.0 0.68 09/08/14 04:18 09/08/14 05:59 ug/Kg Toluene ND 5.0 0.73 09/08/14 04:18 09/08/14 05:59 ug/Kg ND trans-1,2-Dichloroethene 5.0 0.60 ug/Kg 09/08/14 04:18 09/08/14 05:59 trans-1,3-Dichloropropene ND 5.0 0.60 ug/Kg 09/08/14 04:18 09/08/14 05:59

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09/08/14 05:59

09/08/14 05:59

09/08/14 05:59

09/08/14 04:18

09/08/14 04:18

09/08/14 04:18

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5.0

5.0

5.0

ND

ND

ND

0.66

0.92

0.47

ug/Kg

ug/Kg

ug/Kg

2

3

_

7

_

10

QC Sample Results

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

MR MR

Lab Sample ID: MB 180-117277/1-A

Matrix: Solid

Analysis Batch: 117276

Client Sample ID: Method Blank Prep Type: Total/NA

Prep Batch: 117277

	III D					
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		52 - 124	09/08/14 04:18	09/08/14 05:59	1
4-Bromofluorobenzene (Surr)	92		63 - 120	09/08/14 04:18	09/08/14 05:59	1
Dibromofluoromethane (Surr)	98		68 - 121	09/08/14 04:18	09/08/14 05:59	1
Toluene-d8 (Surr)	92		72 - 127	09/08/14 04:18	09/08/14 05:59	1

LCS LCS

Lab Sample ID: LCS 180-117277/2-A

Matrix: Solid

Methylcyclohexane

Analysis Batch: 117276

Client	Sample	ID:	Lab	Cont	rol	Sai	mpl
			D	-			1/81

Prep Type: Total/NA Prep Batch: 117277 %Rec.

Added Result Qualifier %Rec Analyte Unit Limits 1,1,1-Trichloroethane 40.0 50.5 ug/Kg 126 67 _ 126 1,1,2,2-Tetrachloroethane 40.0 39.2 ug/Kg 98 60 - 139 40.0 44 4 ug/Kg 111 55 - 130 1,1,2-Trichloro-1,2,2-trifluoroetha 1,1,2-Trichloroethane 40.0 42.3 ug/Kg 106 70 - 128 1,1-Dichloroethane 40.0 39.8 100 ug/Kg 66 - 1241,1-Dichloroethene 40.0 42.7 107 59 - 129 ug/Kg 40.0 1,2,4-Trichlorobenzene 29.3 ug/Kg 73 51 - 136 1,2-Dibromo-3-Chloropropane 40.0 44.2 111 35 - 136 ug/Kg

Spike

1,2-Dichlorobenzene	40.0	37.5	ug/Kg	94	71 - 124
1,2-Dichloroethane	40.0	49.4	ug/Kg	123	61 - 127
1,2-Dichloropropane	40.0	35.1	ug/Kg	88	72 - 122
1,3-Dichlorobenzene	40.0	38.8	ug/Kg	97	75 ₋ 118
1,4-Dichlorobenzene	40.0	38.4	ug/Kg	96	77 _ 116
2-Butanone (MEK)	40.0	40.0	ug/Kg	100	35 - 149
2-Hexanone	40.0	48.2	ug/Kg	121	32 _ 150
4-Methyl-2-pentanone (MIBK)	40.0	45.6	ug/Kg	114	44 - 148
Acetone	40.0	45.2	ug/Kg	113	20 - 150
Benzene	40.0	36.7	ug/Kg	92	77 - 120
Bromoform	40.0	46.0	ug/Kg	115	53 - 140
Bromomethane	40.0	65.2 *	ug/Kg	163	25 _ 150
Carbon disulfide	40.0	39.5	ug/Kg	99	50 ₋ 127

51.2 128 69 - 122 Carbon tetrachloride 40.0 ug/Kg Chlorobenzene 40.0 38.9 ug/Kg 97 79 - 120 Chlorodibromomethane 40.0 47.9 120 70 - 132 ug/Kg Chloroethane 40.0 77.7 ug/Kg 194 22 - 150 Chloroform 40.0 44 6 112 72 - 120 ug/Kg Chloromethane 40.0 43.0 ug/Kg 107 44 - 131 cis-1,2-Dichloroethene 40.0 37.9 ug/Kg 95 80 - 118 cis-1,3-Dichloropropene 40.0 39.8 ug/Kg 99 73 - 120 40.0 Cyclohexane 38.4 ug/Kg 96 64 - 130 40.0 Dichlorobromomethane 45.6 ug/Kg 114 70 - 125 Dichlorodifluoromethane 40.0 112 44.7 ug/Kg 25 - 150 Ethylbenzene 40.0 38.0 ug/Kg 95 78 - 125 40.0 43.5 109 70 - 131 1,2-Dibromoethane ug/Kg Isopropylbenzene 40.0 38.8 ug/Kg 97 70 - 133 Methyl tert-butyl ether 40.0 47.7 ug/Kg 119 48 - 132

40.0

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66 - 135

87

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34.8

ug/Kg

10/9/2014

Spike

Added

40.0

40.0

40.0

TestAmerica Job ID: 180-36441-1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-117277/2-A

Matrix: Solid

Methylene Chloride

Tetrachloroethene

Trichloroethene

Vinyl chloride

trans-1,2-Dichloroethene

Trichlorofluoromethane

trans-1,3-Dichloropropene

Analyte

Styrene

Toluene

Analysis Batch: 117276

Client Sample ID: Lab Control Sample Prep Type: Total/NA Prep Batch: 117277

Limits Unit %Rec 58 - 127 ug/Kg 80 ug/Kg 98 83 - 129 94 78 - 129 ug/Kg ug/Kg 95 78 - 124 108 77 - 121

40.0 37.8 40.0 43.0 ug/Kg 40.0 46.7 ug/Kg 117 74 - 129 40.0 76 - 119 35.8 ug/Kg 90 40.0 55.7 ug/Kg 139 20 - 150 40.0 41.6 ug/Kg 104 63 - 124

LCS LCS

31.9

39.1

37.7

Result Qualifier

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		52 - 124
4-Bromofluorobenzene (Surr)	88		63 - 120
Dibromofluoromethane (Surr)	96		68 - 121
Toluene-d8 (Surr)	84		72 - 127

Lab Sample ID: 180-36441-4 MS

Matrix: Solid

Analysis Batch: 117276

Client Sample ID: SED-102 Prep Type: Total/NA Prep Batch: 117277

7 , 0.0 2 1112.0	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1,1-Trichloroethane	ND		58.8	86.4	F1	ug/Kg	₽	147	67 - 126
1,1,2,2-Tetrachloroethane	ND		58.8	68.6		ug/Kg	₽	117	60 - 139
1,1,2-Trichloro-1,2,2-trifluoroetha	ND		58.8	65.6		ug/Kg	₽	111	55 ₋ 130
ne									
1,1,2-Trichloroethane	ND		58.8	174		ug/Kg	₽	295	70 - 128
1,1-Dichloroethane	ND		58.8	77.7	F1	ug/Kg	₽	132	66 - 124
1,1-Dichloroethene	ND		58.8	80.6	F1	ug/Kg	₩	137	59 - 129
1,2,4-Trichlorobenzene	ND	*	58.8	28.4	* F1	ug/Kg	₽	48	51 - 136
1,2-Dibromo-3-Chloropropane	ND	*	58.8	67.6	*	ug/Kg	₽	115	35 - 136
1,2-Dichlorobenzene	ND	*	58.8	61.5	*	ug/Kg	₽	105	71 - 124
1,2-Dichloroethane	ND		58.8	82.2	F1	ug/Kg	₽	140	61 - 127
1,2-Dichloropropane	ND		58.8	62.3		ug/Kg	₽	106	72 - 122
1,3-Dichlorobenzene	ND	*	58.8	60.8	*	ug/Kg	₽	103	75 ₋ 118
1,4-Dichlorobenzene	ND	*	58.8	62.8	*	ug/Kg	₽	107	77 - 116
2-Butanone (MEK)	ND		58.8	64.4		ug/Kg	₽	109	35 - 149
2-Hexanone	ND		58.8	167	F1	ug/Kg	₩	283	32 - 150
4-Methyl-2-pentanone (MIBK)	ND		58.8	78.3		ug/Kg	₽	133	44 - 148
Acetone	19	J	58.8	106		ug/Kg	₽	148	20 - 150
Benzene	ND		58.8	65.9		ug/Kg	₩	112	77 - 120
Bromoform	ND		58.8	65.7		ug/Kg	₩	112	53 - 140
Bromomethane	ND	*	58.8	142	F1	ug/Kg	₽	241	25 - 150
Carbon disulfide	ND		58.8	83.0	F1	ug/Kg	₩	141	50 - 127
Carbon tetrachloride	ND	*	58.8	79.1	F1	ug/Kg	₩.	134	69 - 122
Chlorobenzene	ND		58.8	65.8		ug/Kg	₽	112	79 - 120
Chlorodibromomethane	ND		58.8	84.8	F1	ug/Kg	₽	144	70 - 132
Chloroethane	ND	*	58.8	167	F1	ug/Kg	φ.	283	22 _ 150
Chloroform	ND		58.8	81.8	F1	ug/Kg	₩	139	72 - 120

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TestAmerica Job ID: 180-36441-1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-36441-4 MS

Matrix: Solid

Analysis Batch: 117276

Client Sample ID: SED-102 **Prep Type: Total/NA Prep Batch: 117277**

7 manyolo Batom 111210	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Chloromethane	ND		58.8	93.0	F1	ug/Kg	₩	158	44 - 131
cis-1,2-Dichloroethene	ND		58.8	71.9	F1	ug/Kg	₩	122	80 - 118
cis-1,3-Dichloropropene	ND		58.8	64.9		ug/Kg	₽	110	73 - 120
Cyclohexane	37		58.8	115	F1	ug/Kg	₽	133	64 - 130
Dichlorobromomethane	ND		58.8	74.7	F1	ug/Kg	₩	127	70 ₋ 125
Dichlorodifluoromethane	ND		58.8	97.5	F1	ug/Kg	₩	166	25 - 150
Ethylbenzene	2.2	J	58.8	60.2		ug/Kg	₽	98	78 ₋ 125
1,2-Dibromoethane	ND		58.8	76.3		ug/Kg	₽	130	70 _ 131
Isopropylbenzene	2.8	J	58.8	50.8		ug/Kg	₽	82	70 - 133
Methyl tert-butyl ether	ND		58.8	78.5	F1	ug/Kg	₩	133	48 - 132
Methylcyclohexane	100		58.8	178		ug/Kg	₽	124	66 - 135
Methylene Chloride	ND		58.8	65.8		ug/Kg	₩	112	58 ₋ 127
Styrene	ND		58.8	58.4		ug/Kg	₩	99	83 - 129
Tetrachloroethene	ND		58.8	56.6		ug/Kg	₽	96	78 ₋ 129
Toluene	ND		58.8	73.6	F1	ug/Kg	₩	125	78 ₋ 124
trans-1,2-Dichloroethene	ND		58.8	75.0	F1	ug/Kg	₩	127	77 - 121
trans-1,3-Dichloropropene	ND		58.8	89.5	F1	ug/Kg	₩	152	74 - 129
Trichloroethene	ND		58.8	58.0		ug/Kg	₩	99	76 ₋ 119
Trichlorofluoromethane	ND		58.8	110	F1	ug/Kg	₽	187	20 - 150
Vinyl chloride	ND		58.8	89.4	F1	ug/Kg	₩.	152	63 - 124

MS MS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	114		52 - 124
4-Bromofluorobenzene (Surr)	90		63 - 120
Dibromofluoromethane (Surr)	108		68 - 121
Toluene-d8 (Surr)	116		72 - 127

Lab Sample ID: 180-36441-4 MSD

Matrix: Solid

Analysis Batch: 117276

Client Sample ID: SED-102 Prep Type: Total/NA

Prep Batch: 117277

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1,1-Trichloroethane	ND		58.8	89.6	F1	ug/Kg	-	152	67 - 126	4	31
1,1,2,2-Tetrachloroethane	ND		58.8	57.8		ug/Kg	₩	98	60 - 139	17	24
1,1,2-Trichloro-1,2,2-trifluoroetha	ND		58.8	69.2		ug/Kg	₩	118	55 - 130	5	37
ne											
1,1,2-Trichloroethane	ND		58.8	181	F1	ug/Kg	₽	308	70 - 128	4	22
1,1-Dichloroethane	ND		58.8	79.6	F1	ug/Kg	₩	135	66 - 124	3	23
1,1-Dichloroethene	ND		58.8	87.9	F1	ug/Kg	₩	149	59 - 129	9	25
1,2,4-Trichlorobenzene	ND	*	58.8	32.6	*	ug/Kg	₩	55	51 - 136	14	40
1,2-Dibromo-3-Chloropropane	ND	*	58.8	78.2	*	ug/Kg	₩	133	35 - 136	15	40
1,2-Dichlorobenzene	ND	*	58.8	65.6	*	ug/Kg	₩	112	71 - 124	7	22
1,2-Dichloroethane	ND		58.8	81.4	F1	ug/Kg	₩	138	61 - 127	1	23
1,2-Dichloropropane	ND		58.8	59.1		ug/Kg	₩	100	72 - 122	5	20
1,3-Dichlorobenzene	ND	*	58.8	63.6	*	ug/Kg	₩	108	75 - 118	4	20
1,4-Dichlorobenzene	ND	*	58.8	66.9	*	ug/Kg	₩.	114	77 - 116	6	20
2-Butanone (MEK)	ND		58.8	48.4		ug/Kg	₩	82	35 - 149	28	36
2-Hexanone	ND		58.8	163	F1	ug/Kg	₩	278	32 - 150	2	32

TestAmerica Pittsburgh

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10/9/2014

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-36441-4 MSD

Matrix: Solid

Analysis Batch: 117276

Client Sample ID: SED-102

Prep Type: Total/NA
Prep Batch: 117277

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
4-Methyl-2-pentanone (MIBK)	ND		58.8	75.7		ug/Kg	*	129	44 - 148	3	30
Acetone	19	J	58.8	70.4		ug/Kg	₩	87	20 - 150	40	40
Benzene	ND		58.8	66.7		ug/Kg	₩	113	77 - 120	1	20
Bromoform	ND		58.8	61.3		ug/Kg	₩	104	53 - 140	7	23
Bromomethane	ND	*	58.8	150	F1	ug/Kg	₩	255	25 - 150	6	40
Carbon disulfide	ND		58.8	87.4	F1	ug/Kg	₩	148	50 - 127	5	23
Carbon tetrachloride	ND	*	58.8	79.1	F1	ug/Kg	₩	134	69 - 122	0	22
Chlorobenzene	ND		58.8	65.3		ug/Kg	₩	111	79 - 120	1	20
Chlorodibromomethane	ND		58.8	87.9	F1	ug/Kg	₩	149	70 - 132	4	20
Chloroethane	ND	*	58.8	179	F1	ug/Kg	*	304	22 - 150	7	40
Chloroform	ND		58.8	84.6	F1	ug/Kg	₩	144	72 - 120	3	25
Chloromethane	ND		58.8	95.1	F1	ug/Kg	₩	162	44 - 131	2	27
cis-1,2-Dichloroethene	ND		58.8	72.0	F1	ug/Kg	₽	122	80 - 118	0	20
cis-1,3-Dichloropropene	ND		58.8	61.6		ug/Kg	₩	105	73 - 120	5	20
Cyclohexane	37		58.8	111		ug/Kg	₩	127	64 - 130	3	21
Dichlorobromomethane	ND		58.8	74.5	F1	ug/Kg	₩	127	70 - 125	0	21
Dichlorodifluoromethane	ND		58.8	103	F1	ug/Kg	₩	176	25 - 150	6	34
Ethylbenzene	2.2	J	58.8	57.4		ug/Kg	₩	94	78 - 125	5	21
1,2-Dibromoethane	ND		58.8	75.3		ug/Kg	₩	128	70 - 131	1	20
Isopropylbenzene	2.8	J	58.8	45.4		ug/Kg	₩	72	70 - 133	11	22
Methyl tert-butyl ether	ND		58.8	76.8		ug/Kg	₩	130	48 - 132	2	36
Methylcyclohexane	100		58.8	169		ug/Kg	₩.	109	66 - 135	5	23
Methylene Chloride	ND		58.8	69.7		ug/Kg	₩	118	58 - 127	6	28
Styrene	ND		58.8	55.9		ug/Kg	₩	95	83 - 129	4	20
Tetrachloroethene	ND		58.8	54.6		ug/Kg	₩	93	78 - 129	4	20
Toluene	ND		58.8	75.5	F1	ug/Kg	₩	128	78 - 124	3	21
trans-1,2-Dichloroethene	ND		58.8	79.3	F1	ug/Kg	₩	135	77 - 121	6	20
trans-1,3-Dichloropropene	ND		58.8	92.8	F1	ug/Kg	₩	158	74 - 129	4	20
Trichloroethene	ND		58.8	58.2		ug/Kg	₩	99	76 - 119	0	21
Trichlorofluoromethane	ND		58.8	99.4	F1	ug/Kg	₩	169	20 - 150	10	40
Vinyl chloride	ND		58.8	94.7	F1	ug/Kg	₽	161	63 - 124	6	27

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	113		52 - 124
4-Bromofluorobenzene (Surr)	79		63 - 120
Dibromofluoromethane (Surr)	115		68 - 121
Toluene-d8 (Surr)	122		72 - 127

Method: 8260C - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-117991/6

Matrix: Water

Analysis Batch: 117991

Client Sample ID: Method Blank

Prep Type: Total/NA

	MB MB						
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND ND	1.0	0.29 ug/L			09/14/14 13:43	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20 ug/L			09/14/14 13:43	1
1.1.2-Trichloro-1.2.2-trifluoroethane	ND	1.0	0.32 ug/L			09/14/14 13:43	1

TestAmerica Pittsburgh

TestAmerica Job ID: 180-36441-1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-117991/6

Matrix: Water

Client Sam	ple ID:	Meth	od Bl	ank
	Prep 1	Гуре:	Total	/NA

Analysis Batch: 117991	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			09/14/14 13:43	-
1,1-Dichloroethane	ND		1.0	0.12	ug/L			09/14/14 13:43	• • • • • • • •
1,1-Dichloroethene	ND		1.0	0.30				09/14/14 13:43	
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			09/14/14 13:43	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14				09/14/14 13:43	
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			09/14/14 13:43	1
1,2-Dichloroethane	ND		1.0	0.21				09/14/14 13:43	₁
1,2-Dichloropropane	ND		1.0	0.095				09/14/14 13:43	1
1,3-Dichlorobenzene	ND		1.0	0.11				09/14/14 13:43	1
1,4-Dichlorobenzene	ND		1.0	0.21				09/14/14 13:43	_. 1
2-Butanone (MEK)	ND		5.0	0.55				09/14/14 13:43	1
2-Hexanone	ND		5.0	0.16	-			09/14/14 13:43	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53				09/14/14 13:43	
Acetone (MIBIT)	ND		5.0		ug/L			09/14/14 13:43	1
Benzene	ND		1.0	0.11				09/14/14 13:43	1
Bromoform	ND		1.0	0.19				09/14/14 13:43	
Bromomethane	ND		1.0	0.13				09/14/14 13:43	1
Carbon disulfide	ND		1.0	0.21				09/14/14 13:43	1
Carbon tetrachloride	ND		1.0	0.14				09/14/14 13:43	
Chlorobenzene	ND		1.0	0.14	-			09/14/14 13:43	1
Chlorodibromomethane	ND		1.0	0.14	-			09/14/14 13:43	1
Chloroethane	ND		1.0	0.14				09/14/14 13:43	
Chloroform	ND ND		1.0	0.21				09/14/14 13:43	1
Chloromethane	ND ND		1.0		_				
				0.28				09/14/14 13:43	1 1
cis-1,2-Dichloroethene	ND		1.0	0.24	_			09/14/14 13:43	
cis-1,3-Dichloropropene	ND		1.0	0.19	-			09/14/14 13:43	1
Cyclohexane	ND		1.0	0.25				09/14/14 13:43	1
Dichlorobromomethane	ND		1.0	0.13	_			09/14/14 13:43	1
Dichlorodifluoromethane	ND		1.0	0.19				09/14/14 13:43	1
Ethyl ether	ND		1.0	0.082				09/14/14 13:43	1
Ethylbenzene	ND		1.0	0.23				09/14/14 13:43	1
1,2-Dibromoethane	ND		1.0	0.18	-			09/14/14 13:43	1
Isopropylbenzene	ND		1.0	0.16				09/14/14 13:43	1
Methyl acetate	ND		1.0	0.14	_			09/14/14 13:43	1
Methyl tert-butyl ether	ND		1.0	0.18				09/14/14 13:43	1
Methylcyclohexane	ND		1.0	0.26				09/14/14 13:43	1
Methylene Chloride	ND		1.0	0.13				09/14/14 13:43	1
Styrene	ND		1.0	0.097	•			09/14/14 13:43	1
Tetrachloroethene	ND		1.0	0.15				09/14/14 13:43	1
Toluene	ND		1.0	0.15	•			09/14/14 13:43	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/14/14 13:43	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			09/14/14 13:43	1
Trichloroethene	ND		1.0	0.14	ug/L			09/14/14 13:43	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/14/14 13:43	1
Vinyl chloride	ND		1.0	0.23	ug/L			09/14/14 13:43	1
	MD	MP							
Surrogato	MB	MB	Limita				Dronovad	Analyzad	Dil Co
Surrogate 1,2-Dichloroethane-d4 (Surr)	%Recovery	Quantier	64 - 135			_	Prepared	Analyzed 09/14/14 13:43	Dil Fac

TestAmerica Pittsburgh

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10/9/2014

QC Sample Results

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-117991/6

Matrix: Water

Analysis Batch: 117991

Client Sample ID: Method Blank

Prep Type: Total/NA

	IVIB	MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 118		09/14/14 13:43	1
Dibromofluoromethane (Surr)	115		70 - 128		09/14/14 13:43	1
Toluene-d8 (Surr)	103		71 - 118		09/14/14 13:43	1

LCS LCS

Spike

Lab Sample ID: LCS 180-117991/7

Matrix: Water

Analysis Batch: 117991

Client Sample ID:	Lab Control Sample
	Prep Type: Total/NA

%Rec.

	Opike	LUJ	LOG		/oixec.	
Analyte	Added	Result	Qualifier Unit	D %Rec	Limits	
1,1,1-Trichloroethane	10.0	8.94	ug/L		63 - 133	
1,1,2,2-Tetrachloroethane	10.0	10.8	ug/L	108	62 _ 125	
1,1,2-Trichloro-1,2,2-trifluoroetha	10.0	9.04	ug/L	90	46 - 148	
ne						
1,1,2-Trichloroethane	10.0	10.5	ug/L	105	77 - 127	
1,1-Dichloroethane	10.0	9.79	ug/L	98	73 - 126	
1,1-Dichloroethene	10.0	9.28	ug/L	93	65 - 136	
1,2,4-Trichlorobenzene	10.0	10.2	ug/L	102	60 - 127	
1,2-Dibromo-3-Chloropropane	10.0	10.3	ug/L	103	37 - 133	
1,2-Dichlorobenzene	10.0	9.60	ug/L	96	77 - 120	
1,2-Dichloroethane	10.0	9.60	ug/L	96	68 - 132	
1,2-Dichloropropane	10.0	9.78	ug/L	98	76 - 124	
1,3-Dichlorobenzene	10.0	9.74	ug/L	97	76 - 120	
1,4-Dichlorobenzene	10.0	9.78	ug/L	98	77 - 120	
2-Butanone (MEK)	20.0	18.8	ug/L	94	39 - 138	
2-Hexanone	20.0	19.4	ug/L	97	25 - 132	
4-Methyl-2-pentanone (MIBK)	20.0	18.9	ug/L	95	45 - 145	
Acetone	20.0	17.6	ug/L	88	22 - 150	
Benzene	10.0	9.84	ug/L	98	80 - 120	
Bromoform	10.0	10.8	ug/L	108	46 - 150	
Bromomethane	10.0	8.91	ug/L	89	33 - 150	
Carbon disulfide	10.0	9.11	ug/L	91	54 - 132	
Carbon tetrachloride	10.0	9.96	ug/L	100	55 - 150	
Chlorobenzene	10.0	10.4	ug/L	104	80 - 120	
Chlorodibromomethane	10.0	11.1	ug/L	111	60 - 140	
Chloroethane	10.0	8.36	ug/L	84	36 - 142	
Chloroform	10.0	9.45	ug/L	95	72 _ 127	
Chloromethane	10.0	9.06	ug/L	91	50 - 139	
cis-1,2-Dichloroethene	10.0	9.42	ug/L	94	70 - 120	
cis-1,3-Dichloropropene	10.0	9.78	ug/L	98	66 - 120	
Cyclohexane	10.0	9.80	ug/L	98	45 - 142	
Dichlorobromomethane	10.0	9.18	ug/L	92	66 - 130	
Dichlorodifluoromethane	10.0	9.20	ug/L	92	13 - 150	
Ethylbenzene	10.0	10.3	ug/L	103	72 ₋ 126	
1,2-Dibromoethane	10.0	11.1	ug/L	111	74 - 123	
Isopropylbenzene	10.0	10.8	ug/L	108	58 ₋ 130	
Methyl tert-butyl ether	10.0	9.47	ug/L	95	64 - 123	
Methylcyclohexane	10.0	8.97	ug/L	90	45 - 145	
Methylene Chloride	10.0	7.94	ug/L	79	63 _ 129	
			•			

TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-117991/7

Matrix: Water

Analysis Batch: 117991

Client Sample ID: Lab Control Sample Prep Type: Total/NA

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Styrene	10.0	10.2		ug/L		102	71 - 127	
Tetrachloroethene	10.0	10.0		ug/L		100	70 - 135	
Toluene	10.0	10.5		ug/L		105	80 - 123	
trans-1,2-Dichloroethene	10.0	9.68		ug/L		97	73 - 126	
trans-1,3-Dichloropropene	10.0	11.5		ug/L		115	65 - 125	
Trichloroethene	10.0	9.89		ug/L		99	73 - 120	
Trichlorofluoromethane	10.0	8.06		ug/L		81	44 - 150	
Vinyl chloride	10.0	8.76		ug/L		88	53 - 138	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		64 - 135
4-Bromofluorobenzene (Surr)	112		70 - 118
Dibromofluoromethane (Surr)	104		70 - 128
Toluene-d8 (Surr)	113		71 - 118

Lab Sample ID: MB 180-118072/5

Matrix: Water

Analysis Batch: 118072

Client Sample ID: Method Blank

Prep Type: Total/NA

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			09/15/14 12:37	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			09/15/14 12:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			09/15/14 12:37	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			09/15/14 12:37	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			09/15/14 12:37	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			09/15/14 12:37	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			09/15/14 12:37	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			09/15/14 12:37	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			09/15/14 12:37	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			09/15/14 12:37	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			09/15/14 12:37	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			09/15/14 12:37	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			09/15/14 12:37	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			09/15/14 12:37	1
2-Hexanone	ND		5.0	0.16	ug/L			09/15/14 12:37	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			09/15/14 12:37	1
Acetone	ND		5.0	2.5	ug/L			09/15/14 12:37	1
Benzene	ND		1.0	0.11	ug/L			09/15/14 12:37	1
Bromoform	ND		1.0	0.19	ug/L			09/15/14 12:37	1
Bromomethane	ND		1.0	0.31	ug/L			09/15/14 12:37	1
Carbon disulfide	ND		1.0	0.21	ug/L			09/15/14 12:37	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			09/15/14 12:37	1
Chlorobenzene	ND		1.0	0.14	ug/L			09/15/14 12:37	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			09/15/14 12:37	1
Chloroethane	ND		1.0	0.21	ug/L			09/15/14 12:37	1
Chloroform	ND		1.0	0.17	ug/L			09/15/14 12:37	1
Chloromethane	ND		1.0	0.28	ug/L			09/15/14 12:37	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ua/L			09/15/14 12:37	1

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-118072/5

Matrix: Water

Analysis Batch: 118072

Client Sample ID: Method Blank Prep Type: Total/NA

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			09/15/14 12:37	1
Cyclohexane	ND		1.0	0.25	ug/L			09/15/14 12:37	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			09/15/14 12:37	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			09/15/14 12:37	1
Ethyl ether	ND		1.0	0.082	ug/L			09/15/14 12:37	1
Ethylbenzene	ND		1.0	0.23	ug/L			09/15/14 12:37	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			09/15/14 12:37	1
Isopropylbenzene	ND		1.0	0.16	ug/L			09/15/14 12:37	1
Methyl acetate	ND		1.0	0.14	ug/L			09/15/14 12:37	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			09/15/14 12:37	1
Methylcyclohexane	ND		1.0	0.26	ug/L			09/15/14 12:37	1
Methylene Chloride	ND		1.0	0.13	ug/L			09/15/14 12:37	1
Styrene	ND		1.0	0.097	ug/L			09/15/14 12:37	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/15/14 12:37	1
Toluene	ND		1.0	0.15	ug/L			09/15/14 12:37	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/15/14 12:37	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			09/15/14 12:37	1
Trichloroethene	ND		1.0	0.14	ug/L			09/15/14 12:37	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/15/14 12:37	1
Vinyl chloride	ND		1.0	0.23	ug/L			09/15/14 12:37	1

MB MB

Surrogate	%Recovery Qualit	fier Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101	64 - 135		09/15/14 12:37	1
4-Bromofluorobenzene (Surr)	102	70 - 118		09/15/14 12:37	1
Dibromofluoromethane (Surr)	102	70 - 128		09/15/14 12:37	1
Toluene-d8 (Surr)	107	71 118		09/15/14 12:37	1

Lab Sample ID: LCS 180-118072/8

Matrix: Water

Analysis Batch: 118072

Client Sample ID: Lab Control Sample Prep Type: Total/NA

•	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1,1-Trichloroethane	10.0	10.0		ug/L		100	63 - 133
1,1,2,2-Tetrachloroethane	10.0	11.0		ug/L		110	62 _ 125
1,1,2-Trichloro-1,2,2-trifluoroetha	10.0	9.74		ug/L		97	46 - 148
ne							
1,1,2-Trichloroethane	10.0	11.1		ug/L		111	77 ₋ 127
1,1-Dichloroethane	10.0	10.2		ug/L		102	73 - 126
1,1-Dichloroethene	10.0	10.1		ug/L		101	65 _ 136
1,2,4-Trichlorobenzene	10.0	10.6		ug/L		106	60 - 127
1,2-Dibromo-3-Chloropropane	10.0	9.58		ug/L		96	37 - 133
1,2-Dichlorobenzene	10.0	10.8		ug/L		108	77 - 120
1,2-Dichloroethane	10.0	10.1		ug/L		101	68 - 132
1,2-Dichloropropane	10.0	9.96		ug/L		100	76 - 124
1,3-Dichlorobenzene	10.0	10.7		ug/L		107	76 - 120
1,4-Dichlorobenzene	10.0	10.5		ug/L		105	77 - 120
2-Butanone (MEK)	10.0	11.9		ug/L		119	39 - 138
2-Hexanone	10.0	10.8		ug/L		108	25 - 132

TestAmerica Pittsburgh

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TestAmerica Job ID: 180-36441-1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-118072/8

Matrix: Water

Analysis Batch: 118072

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Analysis Batch. 110072	Spike	LCS	LCS		%Rec.	
Analyte	Added	Result	Qualifier Unit	D %Rec	Limits	
4-Methyl-2-pentanone (MIBK)	10.0	10.1	ug/L	101	45 _ 145	
Acetone	10.0	11.3	ug/L	113	22 _ 150	
Benzene	10.0	10.4	ug/L	104	80 - 120	
Bromoform	10.0	8.74	ug/L	87	46 _ 150	
Bromomethane	10.0	9.70	ug/L	97	33 _ 150	
Carbon disulfide	10.0	9.78	ug/L	98	54 - 132	
Carbon tetrachloride	10.0	9.76	ug/L	98	55 _ 150	
Chlorobenzene	10.0	10.9	ug/L	109	80 _ 120	
Chlorodibromomethane	10.0	10.1	ug/L	101	60 - 140	
Chloroethane	10.0	8.92	ug/L	89	36 _ 142	
Chloroform	10.0	10.3	ug/L	103	72 - 127	
Chloromethane	10.0	8.78	ug/L	88	50 _ 139	
cis-1,2-Dichloroethene	10.0	10.3	ug/L	103	70 _ 120	
cis-1,3-Dichloropropene	10.0	8.79	ug/L	88	66 _ 120	
Cyclohexane	10.0	9.89	ug/L	99	45 _ 142	
Dichlorobromomethane	10.0	9.24	ug/L	92	66 - 130	
Dichlorodifluoromethane	10.0	10.6	ug/L	106	13 _ 150	
Ethylbenzene	10.0	11.0	ug/L	110	72 _ 126	
1,2-Dibromoethane	10.0	10.7	ug/L	107	74 _ 123	
Isopropylbenzene	10.0	11.3	ug/L	113	58 - 130	
Methyl tert-butyl ether	10.0	10.1	ug/L	101	64 - 123	
Methylcyclohexane	10.0	9.75	ug/L	98	45 _ 145	
Methylene Chloride	10.0	9.56	ug/L	96	63 _ 129	
Styrene	10.0	10.8	ug/L	108	71 - 127	
Tetrachloroethene	10.0	11.1	ug/L	111	70 _ 135	
Toluene	10.0	10.9	ug/L	109	80 - 123	
trans-1,2-Dichloroethene	10.0	10.4	ug/L	104	73 _ 126	
trans-1,3-Dichloropropene	10.0	10.3	ug/L	103	65 _ 125	
Trichloroethene	10.0	9.88	ug/L	99	73 _ 120	
Trichlorofluoromethane	10.0	9.19	ug/L	92	44 - 150	
Vinyl chloride	10.0	9.35	ug/L	94	53 - 138	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		64 - 135
4-Bromofluorobenzene (Surr)	104		70 - 118
Dibromofluoromethane (Surr)	97		70 - 128
Toluene-d8 (Surr)	105		71 - 118

Lab Sample ID: 180-36441-13 MS

Matrix: Water

Analysis Batch: 118072

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1,1-Trichloroethane	ND		10.0	9.24		ug/L		92	63 - 133	
1,1,2,2-Tetrachloroethane	ND		10.0	10.9		ug/L		109	62 - 125	
1,1,2-Trichloro-1,2,2-trifluoroetha	ND		10.0	9.24		ug/L		92	46 - 148	
ne 1,1,2-Trichloroethane	ND		10.0	10.4		ug/L		104	77 ₋ 127	

Client Sample ID: SG-4

Prep Type: Total/NA

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TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

%Recovery

99

101

100

105

Qualifier

Lab Sample ID: 180-36441-13 MS

Matrix: Water

Surrogate

1,2-Dichloroethane-d4 (Surr)

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

Toluene-d8 (Surr)

Analysis Batch: 118072

Client Sample ID: SG-4 Prep Type: Total/NA

	Sample Sample	Spike	MS MS			%Rec.
Analyte	Result Qualifier	Added	Result Qualifie		D %Rec	Limits
1,1-Dichloroethane	ND	10.0	9.67	ug/L	97	73 _ 126
1,1-Dichloroethene	ND	10.0	9.33	ug/L	93	65 - 136
1,2,4-Trichlorobenzene	ND	10.0	10.1	ug/L	101	60 - 127
1,2-Dibromo-3-Chloropropane	ND	10.0	8.94	ug/L	89	37 - 133
1,2-Dichlorobenzene	1.6	10.0	11.5	ug/L	99	77 - 120
1,2-Dichloroethane	ND	10.0	9.65	ug/L	97	68 - 132
1,2-Dichloropropane	ND	10.0	9.29	ug/L	93	76 - 124
1,3-Dichlorobenzene	ND	10.0	9.83	ug/L	98	76 - 120
1,4-Dichlorobenzene	0.36 J	10.0	10.4	ug/L	101	77 - 120
2-Butanone (MEK)	ND	10.0	11.3	ug/L	113	39 - 138
2-Hexanone	ND	10.0	11.2	ug/L	112	25 _ 132
4-Methyl-2-pentanone (MIBK)	ND	10.0	10.5	ug/L	105	45 - 145
Acetone	5.4	10.0	17.1	ug/L	117	22 - 150
Benzene	0.12 J	10.0	9.63	ug/L	95	80 - 120
Bromoform	ND	10.0	8.44	ug/L	84	46 - 150
Bromomethane	ND	10.0	9.32	ug/L	93	33 - 150
Carbon disulfide	ND	10.0	8.99	ug/L	90	54 ₋ 132
Carbon tetrachloride	ND	10.0	9.10	ug/L	91	55 _ 150
Chlorobenzene	0.88 J	10.0	11.2	ug/L	103	80 - 120
Chlorodibromomethane	ND	10.0	9.26	ug/L	93	60 - 140
Chloroethane	ND	10.0	9.06	ug/L	91	36 - 142
Chloroform	ND	10.0	9.66	ug/L	97	72 ₋ 127
Chloromethane	ND	10.0	8.70	ug/L	87	50 ₋ 139
cis-1,2-Dichloroethene	ND	10.0	9.47	ug/L	95	70 - 120
cis-1,3-Dichloropropene	ND	10.0	8.90	ug/L	89	66 - 120
Cyclohexane	ND	10.0	9.15	ug/L	92	45 - 142
Dichlorobromomethane	ND	10.0	8.89	ug/L	89	66 - 130
Dichlorodifluoromethane	ND	10.0	9.96	ug/L	100	13 - 150
Ethylbenzene	ND	10.0	10.2	ug/L	102	72 - 126
1,2-Dibromoethane	ND	10.0	10.2	ug/L	102	74 - 123
Isopropylbenzene	ND	10.0	10.5	ug/L	105	58 - 130
Methyl tert-butyl ether	ND	10.0	10.3	ug/L	103	64 - 123
Methylcyclohexane	ND	10.0	8.99	ug/L	90	45 - 145
Methylene Chloride	ND	10.0	9.23	ug/L	92	63 - 129
Styrene	ND	10.0	10.2	ug/L	102	71 - 127
Tetrachloroethene	ND	10.0	9.80	ug/L	98	70 - 135
Toluene	ND	10.0	10.2	ug/L	102	80 - 123
trans-1,2-Dichloroethene	ND	10.0	9.86	ug/L	99	73 - 126
trans-1,3-Dichloropropene	ND	10.0	10.0	ug/L	100	65 - 125
Trichloroethene	ND	10.0	9.29	ug/L	93	73 - 120
Trichlorofluoromethane	ND	10.0	8.18	ug/L	82	44 - 150
Vinyl chloride	ND	10.0	8.52	.	85	53 - 138
viriyi dillonde	MS MS	10.0	0.02	ug/L	05	JJ - 1J0

TestAmerica Pittsburgh

Limits

64 - 135

70 - 118

70 - 128

71 - 118

QC Sample Results

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-36441-13 MSD

Matrix: Water

Client Sample ID: SG-4 Prep Type: Total/NA

Analysis Batch: 118072	Sample	Sample	Spike	MSD	MSD				%Rec.		RPI
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Lim
1,1,1-Trichloroethane	ND		10.0	8.74		ug/L		87	63 - 133	6	3
1,1,2,2-Tetrachloroethane	ND		10.0	11.1		ug/L		111	62 - 125	2	3
1,1,2-Trichloro-1,2,2-trifluoroetha	ND		10.0	8.95		ug/L		89	46 - 148	3	3
ne 1,1,2-Trichloroethane	ND		10.0	10.7		ug/L		107	77 ₋ 127	3	3
1,1-Dichloroethane	ND		10.0	9.50		ug/L		95	73 - 126	2	3
1,1-Dichloroethene	ND		10.0	8.76		ug/L		88	65 - 136	6	3
1,2,4-Trichlorobenzene	ND.		10.0	10.0		ug/L		100	60 - 127		3
1,2-Dibromo-3-Chloropropane	ND		10.0	9.09		ug/L		91	37 - 133	2	3
1,2-Dichlorobenzene	1.6		10.0	11.9		ug/L		103	77 - 120	3	2
1,2-Dichloroethane	ND		10.0	9.54		ug/L		95	68 - 132		3
1,2-Dichloropropane	ND		10.0	8.96		ug/L		90	76 - 124	4	3
1,3-Dichlorobenzene	ND		10.0	9.98		ug/L		100	76 ₋ 120	2	2
1,4-Dichlorobenzene	0.36	.i	10.0	10.3		ug/L		99	77 - 120	. 1	2
2-Butanone (MEK)	ND	-	10.0	12.3		ug/L		123	39 - 138	8	3
2-Hexanone	ND		10.0	11.7		ug/L		117	25 - 132	5	3
4-Methyl-2-pentanone (MIBK)	ND		10.0	10.4		ug/L		104	45 - 145		3
Acetone	5.4		10.0	19.4		ug/L		139	22 - 150	12	3
Benzene	0.12	1	10.0	9.42		ug/L		93	80 - 120	2	3
Bromoform	ND		10.0	8.51				85	46 - 150		3
Bromomethane	ND ND		10.0	9.10		ug/L ug/L		91	33 ₋ 150	2	3
Carbon disulfide	ND ND		10.0	8.47				85	54 - 132	6	3
Carbon tetrachloride	ND		10.0	8.71		ug/L ug/L		87	55 ₋ 150		3
Chlorobenzene	0.88		10.0	11.0				101	80 ₋ 120	1	2
Chlorodibromomethane	ND	J	10.0			ug/L					
	ND		10.0	9.21		ug/L		92	60 - 140	1 9	3
Chloroform	ND ND					ug/L		83	36 ₋ 142		3
Chloromothana			10.0	9.40		ug/L		94	72 - 127	3	
Chloromethane	ND ND		10.0	8.60		ug/L		86	50 ₋ 139		3
cis-1,2-Dichloroethene			10.0	9.24		ug/L		92	70 ₋ 120		3
cis-1,3-Dichloropropene	ND		10.0	8.36		ug/L		84	66 ₋ 120	6	3
Cyclohexane	ND		10.0	8.88		ug/L		89	45 - 142	3	3
Dichlorobromomethane Dichlorodiffusermethane	ND		10.0	8.53		ug/L		85	66 - 130	4	3
Dichlorodifluoromethane	ND ND		10.0 10.0	9.11 10.1		ug/L		91	13 ₋ 150 72 ₋ 126	9 1	3
Ethylbenzene						ug/L		101			3
1,2-Dibromoethane	ND		10.0	10.2		ug/L		102	74 ₋ 123	0	3
Isopropylbenzene	ND		10.0	10.2		ug/L		102	58 ₋ 130	3	3
Methyl tert-butyl ether	ND.		10.0	9.74		ug/L		97	64 - 123	6	3
Methylcyclohexane	ND		10.0	8.74		ug/L		87	45 - 145	3	3
Methylene Chloride	ND		10.0	9.16		ug/L		92	63 - 129	1	3
Styrene	ND		10.0	9.72		ug/L		97	71 - 127	<u>.</u> .	3
Tetrachloroethene	ND		10.0	10.3		ug/L		103	70 ₋ 135	5	3
Toluene	ND		10.0	9.95		ug/L		99	80 - 123	2	3
trans-1,2-Dichloroethene	ND		10.0	9.46		ug/L		95	73 - 126	4	3
trans-1,3-Dichloropropene	ND		10.0	10.0		ug/L		100	65 - 125	0	3
Trichloroethene	ND		10.0	8.92		ug/L		89	73 - 120	4	3
Trichlorofluoromethane	ND		10.0	8.03		ug/L		80	44 - 150	2	3

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QC Sample Results

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-36441-13 MSD

Matrix: Water

Analysis Batch: 118072

Client Sample ID: SG-4 Prep Type: Total/NA

MSD MSD Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 99 64 - 135 4-Bromofluorobenzene (Surr) 99 70 - 118 Dibromofluoromethane (Surr) 70 - 128 94 Toluene-d8 (Surr) 102 71 - 118

Lab Sample ID: MB 180-118218/6

Matrix: Water

Analysis Batch: 118218

Client Sample I	ID: Method Blank
Pro	n Type: Total/NA

MB	MB

-	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			09/16/14 15:31	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			09/16/14 15:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			09/16/14 15:31	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			09/16/14 15:31	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			09/16/14 15:31	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			09/16/14 15:31	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			09/16/14 15:31	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			09/16/14 15:31	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			09/16/14 15:31	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			09/16/14 15:31	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			09/16/14 15:31	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			09/16/14 15:31	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			09/16/14 15:31	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			09/16/14 15:31	1
2-Hexanone	ND		5.0	0.16	ug/L			09/16/14 15:31	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			09/16/14 15:31	1
Acetone	ND		5.0	2.5	ug/L			09/16/14 15:31	1
Benzene	ND		1.0	0.11	ug/L			09/16/14 15:31	1
Bromoform	ND		1.0	0.19	ug/L			09/16/14 15:31	1
Bromomethane	ND		1.0	0.31	ug/L			09/16/14 15:31	1
Carbon disulfide	ND		1.0	0.21	ug/L			09/16/14 15:31	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			09/16/14 15:31	1
Chlorobenzene	ND		1.0	0.14	ug/L			09/16/14 15:31	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			09/16/14 15:31	1
Chloroethane	ND		1.0	0.21	ug/L			09/16/14 15:31	1
Chloroform	ND		1.0	0.17	ug/L			09/16/14 15:31	1
Chloromethane	ND		1.0	0.28	ug/L			09/16/14 15:31	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			09/16/14 15:31	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			09/16/14 15:31	1
Cyclohexane	ND		1.0	0.25	ug/L			09/16/14 15:31	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			09/16/14 15:31	1
Dichlorodifluoromethane	ND		1.0		ug/L			09/16/14 15:31	1
Ethyl ether	ND		1.0	0.082	ug/L			09/16/14 15:31	1
Ethylbenzene	ND		1.0	0.23	ug/L			09/16/14 15:31	1
1,2-Dibromoethane	ND		1.0		ug/L			09/16/14 15:31	1
Isopropylbenzene	ND		1.0	0.16	ug/L			09/16/14 15:31	1
Methyl acetate	ND		1.0		ug/L			09/16/14 15:31	1
Methyl tert-butyl ether	ND		1.0		ug/L			09/16/14 15:31	1

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-118218/6

Matrix: Water

Analysis Batch: 118218

Client Sam	ple ID:	Meth	od Bl	ank
	Prep '	Type:	Total	/NA

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylcyclohexane	ND		1.0	0.26	ug/L			09/16/14 15:31	1
Methylene Chloride	ND		1.0	0.13	ug/L			09/16/14 15:31	1
Styrene	ND		1.0	0.097	ug/L			09/16/14 15:31	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/16/14 15:31	1
Toluene	ND		1.0	0.15	ug/L			09/16/14 15:31	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			09/16/14 15:31	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			09/16/14 15:31	1
Trichloroethene	ND		1.0	0.14	ug/L			09/16/14 15:31	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/16/14 15:31	1
Vinyl chloride	ND		1.0	0.23	ug/L			09/16/14 15:31	1
Vinyl chloride	ND		1.0	0.23	ug/L			09/16/14 15:31	

MB MB Surrogate %Recovery Qualifier Prepared Analyzed 1,2-Dichloroethane-d4 (Surr) 100 64 - 135 09/16/14 15:31 4-Bromofluorobenzene (Surr) 103 70 - 118 09/16/14 15:31 Dibromofluoromethane (Surr) 100 70 - 128 09/16/14 15:31 Toluene-d8 (Surr) 108 71 - 118 09/16/14 15:31

Lab Sample ID: LCS 180-118218/9 Client Sample ID: Lab Control Sample **Matrix: Water** Prep Type: Total/NA

Analysis Ratch: 119219

Analysis Batch: 118218							
	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1,1-Trichloroethane	10.0	9.59		ug/L		96	63 - 133
1,1,2,2-Tetrachloroethane	10.0	10.8		ug/L		108	62 - 125
1,1,2-Trichloro-1,2,2-trifluoroetha	10.0	9.78		ug/L		98	46 - 148
ne							
1,1,2-Trichloroethane	10.0	10.3		ug/L		103	77 ₋ 127
1,1-Dichloroethane	10.0	10.2		ug/L		102	73 - 126
1,1-Dichloroethene	10.0	9.86		ug/L		99	65 - 136
1,2,4-Trichlorobenzene	10.0	10.4		ug/L		104	60 - 127
1,2-Dibromo-3-Chloropropane	10.0	8.82		ug/L		88	37 - 133
1,2-Dichlorobenzene	10.0	10.6		ug/L		106	77 - 120
1,2-Dichloroethane	10.0	9.99		ug/L		100	68 - 132
1,2-Dichloropropane	10.0	9.73		ug/L		97	76 - 124
1,3-Dichlorobenzene	10.0	10.5		ug/L		105	76 - 120
1,4-Dichlorobenzene	10.0	10.6		ug/L		106	77 - 120
2-Butanone (MEK)	20.0	20.3		ug/L		102	39 - 138
2-Hexanone	20.0	20.3		ug/L		102	25 - 132
4-Methyl-2-pentanone (MIBK)	20.0	18.8		ug/L		94	45 - 145
Acetone	20.0	17.6		ug/L		88	22 - 150
Benzene	10.0	9.92		ug/L		99	80 - 120
Bromoform	10.0	8.19		ug/L		82	46 - 150
Bromomethane	10.0	10.1		ug/L		101	33 _ 150
Carbon disulfide	10.0	9.28		ug/L		93	54 - 132
Carbon tetrachloride	10.0	9.44		ug/L		94	55 - 150
Chlorobenzene	10.0	10.3		ug/L		103	80 - 120
Chlorodibromomethane	10.0	9.30		ug/L		93	60 - 140
Chloroethane	10.0	9.78		ug/L		98	36 - 142

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-118218/9

Matrix: Water

Analysis Batch: 118218

Client Sample ID: Lab Control Sample Prep Type: Total/NA

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloroform	10.0	10.1		ug/L		101	72 - 127	
Chloromethane	10.0	9.41		ug/L		94	50 - 139	
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	70 - 120	
cis-1,3-Dichloropropene	10.0	8.76		ug/L		88	66 - 120	
Cyclohexane	10.0	9.82		ug/L		98	45 - 142	
Dichlorobromomethane	10.0	8.84		ug/L		88	66 - 130	
Dichlorodifluoromethane	10.0	10.5		ug/L		105	13 _ 150	
Ethylbenzene	10.0	10.4		ug/L		104	72 _ 126	
1,2-Dibromoethane	10.0	9.95		ug/L		99	74 - 123	
Isopropylbenzene	10.0	10.8		ug/L		108	58 - 130	
Methyl tert-butyl ether	10.0	10.1		ug/L		101	64 - 123	
Methylcyclohexane	10.0	9.78		ug/L		98	45 - 145	
Methylene Chloride	10.0	9.19		ug/L		92	63 _ 129	
Styrene	10.0	10.1		ug/L		101	71 - 127	
Tetrachloroethene	10.0	10.3		ug/L		103	70 - 135	
Toluene	10.0	10.3		ug/L		103	80 - 123	
trans-1,2-Dichloroethene	10.0	10.2		ug/L		102	73 - 126	
trans-1,3-Dichloropropene	10.0	9.69		ug/L		97	65 ₋ 125	
Trichloroethene	10.0	10.0		ug/L		100	73 - 120	
Trichlorofluoromethane	10.0	8.93		ug/L		89	44 _ 150	
Vinyl chloride	10.0	9.18		ug/L		92	53 - 138	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		64 - 135
4-Bromofluorobenzene (Surr)	100		70 - 118
Dibromofluoromethane (Surr)	98		70 - 128
Toluene-d8 (Surr)	103		71 - 118

Lab Sample ID: 180-36441-14 MS

Matrix: Water

Analysis Batch: 118218

•	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1,1-Trichloroethane	ND		10.0	9.07	-	ug/L		91	63 - 133	
1,1,2,2-Tetrachloroethane	ND		10.0	11.0		ug/L		110	62 - 125	
1,1,2-Trichloro-1,2,2-trifluoroetha	ND		10.0	9.45		ug/L		94	46 - 148	
ne										
1,1,2-Trichloroethane	ND		10.0	10.0		ug/L		100	77 - 127	
1,1-Dichloroethane	ND		10.0	9.96		ug/L		100	73 - 126	
1,1-Dichloroethene	ND		10.0	9.61		ug/L		96	65 - 136	
1,2,4-Trichlorobenzene	ND		10.0	9.98		ug/L		100	60 - 127	
1,2-Dibromo-3-Chloropropane	ND		10.0	8.90		ug/L		89	37 - 133	
1,2-Dichlorobenzene	1.9		10.0	12.1		ug/L		102	77 - 120	
1,2-Dichloroethane	ND		10.0	9.80		ug/L		98	68 - 132	
1,2-Dichloropropane	ND		10.0	9.64		ug/L		96	76 - 124	
1,3-Dichlorobenzene	ND		10.0	10.1		ug/L		101	76 - 120	
1,4-Dichlorobenzene	0.36	J	10.0	10.4		ug/L		100	77 - 120	
2-Butanone (MEK)	0.69	J	10.0	12.1		ug/L		114	39 - 138	

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Client Sample ID: SG-3 Prep Type: Total/NA

TestAmerica Job ID: 180-36441-1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-36441-14 MS

Analysis Batch: 118218

Matrix: Water

Client Sample ID: SG-3 Prep Type: Total/NA

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
2-Hexanone	ND		10.0	11.5		ug/L		115	25 - 132	
4-Methyl-2-pentanone (MIBK)	ND		10.0	10.1		ug/L		101	45 - 145	
Acetone	7.2		10.0	17.1		ug/L		99	22 _ 150	
Benzene	0.17	J	10.0	9.92		ug/L		98	80 - 120	
Bromoform	ND		10.0	8.15		ug/L		81	46 - 150	
Bromomethane	ND		10.0	9.62		ug/L		96	33 - 150	
Carbon disulfide	ND		10.0	8.73		ug/L		87	54 - 132	
Carbon tetrachloride	ND		10.0	9.12		ug/L		91	55 - 150	
Chlorobenzene	1.1		10.0	11.2		ug/L		102	80 - 120	
Chlorodibromomethane	ND		10.0	8.78		ug/L		88	60 - 140	
Chloroethane	ND		10.0	9.12		ug/L		91	36 - 142	
Chloroform	ND		10.0	9.73		ug/L		97	72 _ 127	
Chloromethane	ND		10.0	8.99		ug/L		90	50 - 139	
cis-1,2-Dichloroethene	ND		10.0	9.53		ug/L		95	70 - 120	
cis-1,3-Dichloropropene	ND		10.0	8.78		ug/L		88	66 - 120	
Cyclohexane	ND		10.0	9.20		ug/L		92	45 - 142	
Dichlorobromomethane	ND		10.0	8.84		ug/L		88	66 - 130	
Dichlorodifluoromethane	ND		10.0	9.64		ug/L		96	13 _ 150	
Ethylbenzene	ND		10.0	10.1		ug/L		101	72 - 126	
1,2-Dibromoethane	ND		10.0	10.1		ug/L		101	74 - 123	
Isopropylbenzene	ND		10.0	10.5		ug/L		105	58 - 130	
Methyl tert-butyl ether	ND		10.0	10.1		ug/L		101	64 - 123	
Methylcyclohexane	ND		10.0	9.31		ug/L		93	45 - 145	
Methylene Chloride	ND		10.0	9.25		ug/L		93	63 - 129	
Styrene	ND		10.0	9.99		ug/L		100	71 - 127	
Tetrachloroethene	ND		10.0	10.0		ug/L		100	70 - 135	
Toluene	ND		10.0	10.4		ug/L		104	80 - 123	
trans-1,2-Dichloroethene	ND		10.0	9.96		ug/L		100	73 - 126	
trans-1,3-Dichloropropene	ND		10.0	9.69		ug/L		97	65 - 125	
Trichloroethene	ND		10.0	9.57		ug/L		96	73 - 120	
Trichlorofluoromethane	ND		10.0	8.28		ug/L		83	44 - 150	
Vinyl chloride	ND		10.0	8.70		ug/L		87	53 _ 138	

MS MS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		64 - 135
4-Bromofluorobenzene (Surr)	98		70 - 118
Dibromofluoromethane (Surr)	102		70 - 128
Toluene-d8 (Surr)	103		71 - 118

Lab Sample ID: 180-36441-14 MSD

Matrix: Water

Analysis Batch: 118218

Client Sample ID: SG-3 Prep Type: Total/NA

_	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1,1-Trichloroethane	ND		10.0	8.58		ug/L		86	63 - 133	6	35
1,1,2,2-Tetrachloroethane	ND		10.0	10.1		ug/L		101	62 - 125	9	35
1,1,2-Trichloro-1,2,2-trifluoroetha	ND		10.0	9.58		ug/L		96	46 - 148	1	35
ne											

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-36441-14 MSD

Matrix: Water

Analysis Batch: 118218

Client Sample ID: SG-3 Prep Type: Total/NA

	•	Sample	Spike		MSD				%Rec.		RPD
Analyte		Qualifier	Added		Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1,2-Trichloroethane	ND		10.0	9.33		ug/L		93	77 _ 127	7	35
1,1-Dichloroethane	ND		10.0	9.54		ug/L		95	73 - 126	4	35
1,1-Dichloroethene	ND		10.0	9.22		ug/L		92	65 - 136	4	35
1,2,4-Trichlorobenzene	ND		10.0	9.61		ug/L		96	60 - 127	4	35
1,2-Dibromo-3-Chloropropane	ND		10.0	8.51		ug/L		85	37 - 133	5	35
1,2-Dichlorobenzene	1.9		10.0	11.5		ug/L		96	77 - 120	6	24
1,2-Dichloroethane	ND		10.0	9.62		ug/L		96	68 - 132	2	32
1,2-Dichloropropane	ND		10.0	9.33		ug/L		93	76 - 124	3	34
1,3-Dichlorobenzene	ND		10.0	9.77		ug/L		98	76 - 120	3	24
1,4-Dichlorobenzene	0.36	J	10.0	9.90		ug/L		95	77 - 120	5	24
2-Butanone (MEK)	0.69	J	10.0	11.9		ug/L		112	39 - 138	1	35
2-Hexanone	ND		10.0	10.9		ug/L		109	25 - 132	5	35
4-Methyl-2-pentanone (MIBK)	ND		10.0	9.77		ug/L		98	45 - 145	3	35
Acetone	7.2		10.0	17.0		ug/L		99	22 - 150	0	35
Benzene	0.17	J	10.0	9.65		ug/L		95	80 - 120	3	32
Bromoform	ND		10.0	7.59		ug/L		76	46 - 150	7	35
Bromomethane	ND		10.0	8.72		ug/L		87	33 - 150	10	35
Carbon disulfide	ND		10.0	8.55		ug/L		85	54 - 132	2	35
Carbon tetrachloride	ND		10.0	8.77		ug/L		88	55 ₋ 150	4	35
Chlorobenzene	1.1		10.0	10.6		ug/L		95	80 - 120	6	29
Chlorodibromomethane	ND		10.0	8.66		ug/L		87	60 - 140	1	35
Chloroethane	ND		10.0	9.62		ug/L		96	36 - 142	5	35
Chloroform	ND		10.0	9.54		ug/L		95	72 - 127	2	35
Chloromethane	ND		10.0	8.45		ug/L		84	50 ₋ 139	6	35
cis-1,2-Dichloroethene	ND		10.0	9.34		ug/L		93	70 - 120	2	35
cis-1,3-Dichloropropene	ND		10.0	8.36		ug/L		84	66 - 120	5	35
Cyclohexane	ND		10.0	9.22		ug/L		92	45 - 142	0	35
Dichlorobromomethane	ND		10.0	8.59		ug/L		86	66 - 130	3	35
Dichlorodifluoromethane	ND		10.0	9.90		ug/L		99	13 - 150	3	35
Ethylbenzene	ND		10.0	9.76		ug/L		98	72 ₋ 126	4	33
1,2-Dibromoethane	ND		10.0	9.67		ug/L		97	74 - 123	4	35
Isopropylbenzene	ND		10.0	9.89		ug/L		99	58 - 130	6	35
Methyl tert-butyl ether	ND		10.0	9.84		ug/L		98	64 - 123	3	35
Methylcyclohexane	ND		10.0	9.26		ug/L		93	45 - 145	1	35
Methylene Chloride	ND		10.0	9.21		ug/L		92	63 - 129	0	35
Styrene	ND		10.0	9.32		ug/L		93	71 - 127	7	34
Tetrachloroethene	ND		10.0	9.53		ug/L		95	70 - 135	5	35
Toluene	ND ND		10.0	9.56		ug/L ug/L		96	80 ₋ 123	8	35
trans-1,2-Dichloroethene	ND ND		10.0	9.89		ug/L ug/L		99	73 - 126	1	35
trans-1,3-Dichloropropene	ND		10.0	9.33		ug/L ug/L		93	65 - 125	4	35
Trichloroethene	ND ND		10.0	9.33		ug/L ug/L		93	73 - 120	3	35
Trichlorofluoromethane	ND ND		10.0	8.91		ug/L ug/L		93 89	73 - 120 44 - 150	3 7	35
monordination	ND		10.0	8.89		ug/L ug/L		89	53 - 138	2	35

	MSD MSI	D .
Surrogate	%Recovery Qua	alifier Limits
1,2-Dichloroethane-d4 (Surr)	99	64 - 135
4-Bromofluorobenzene (Surr)	98	70 - 118
Dibromofluoromethane (Surr)	94	70 - 128

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Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Client Sample ID: SG-3

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

%Rec.

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Client Sample ID: SG-7

Client Sample ID: SG-7

Client Sample ID: SG-4

Client Sample ID: SG-4

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-36441-14 MSD

Matrix: Water

Analysis Batch: 118218

MSD MSD

%Recovery Surrogate Qualifier Limits Toluene-d8 (Surr) 99 71 - 118

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 180-118382/6

Matrix: Water

Analysis Batch: 118382

MB MB

Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac Sulfate ND 1.0 09/17/14 13:48 0.21 mg/L

LCS LCS

Lab Sample ID: LCS 180-118382/5

Matrix: Water

Analysis Batch: 118382

Spike Added Result Qualifier Unit %Rec Analyte Limits Sulfate 50.0 50.8 102 90 - 110 mg/L

Lab Sample ID: 180-36441-7 MS

Matrix: Water

Analysis Batch: 118382

Sample Sample Spike MS MS %Rec. Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits 125 Sulfate 99 mg/L 109 80 - 120 235

Lab Sample ID: 180-36441-7 MSD

Matrix: Water

Analysis Batch: 118382

Sample Sample Spike MSD MSD %Rec. RPD Result Qualifier Added Result Qualifier Limits RPD Limit Analyte Unit D %Rec 125 237 80 - 120 Sulfate 99 mg/L 110

Lab Sample ID: 180-36441-13 MS

Matrix: Water

Analysis Batch: 118382

Sample Sample Spike MS MS %Rec. Result Qualifier Added Analyte Result Qualifier Unit D %Rec Limits Sulfate 92 125 230 mg/L 110 80 - 120

Lab Sample ID: 180-36441-13 MSD

Matrix: Water

Analysis Batch: 118382

RPD Spike MSD MSD %Rec. Sample Sample Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD Limit Sulfate 125 105 92 223 mg/L 80 - 120

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Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Prep Type: Soluble

Client Sample ID: SED-102

Client Sample ID: SED-102

Client Sample ID: Method Blank

Prep Type: Soluble

Prep Type: Soluble

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LB3 180-118001/1-A

Matrix: Solid

Analysis Batch: 117995

LB3 LB3

Result Qualifier RL MDL Unit Dil Fac Analyte D Prepared Analyzed 10 Sulfate ND 2.1 mg/Kg 09/14/14 16:16

Lab Sample ID: LCS 180-118001/2-A

Matrix: Solid

Analysis Batch: 117995

LCS LCS %Rec. Spike Analyte Added Result Qualifier Unit %Rec Limits Bromide 100 103 mg/Kg 103 90 - 110 Fluoride 25.0 25.5 mg/Kg 90 - 110 102 Sulfate 500 520 mg/Kg 104 90 - 110

Lab Sample ID: 180-36441-4 MS

Matrix: Solid

Analysis Batch: 117995

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Bromide	ND		73.8	72.0		mg/Kg	<u> </u>	98	80 - 120	
Fluoride	0.52		18.4	17.3		mg/Kg	₽	91	80 - 120	

Lab Sample ID: 180-36441-4 MSD

Matrix: Solid

Analysis Batch: 117995

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Bromide	ND		73.1	69.0		mg/Kg	\	94	80 - 120	4	20
Fluoride	0.52		18.3	16.5		mg/Kg	₽	87	80 - 120	5	20

Lab Sample ID: LB3 180-118001/1-A

Matrix: Solid

Analysis Batch: 118382

	_			ı	_B3	LB	3
_				_		_	

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND ND		2.1	mg/Kg			09/17/14 14:03	1

Lab Sample ID: LCS 180-118001/2-A

Matrix: Solid Analysis Batch: 118382

, , , , , , , , , , , , , , , , , , , ,	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Chloride	500	543		mg/Kg		109	90 - 110
Sulfate	500	525		ma/Ka		105	90 - 110

Lab Sample ID: 180-36441-4 MS

Matrix: Solid

Analysis Batch: 118382

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	27		369	414		mg/Kg	\	105	80 - 120	

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Prep Type: Soluble

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Client Sample ID: SED-102

Prep Type: Soluble

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 180-36441-4 MS

Client Sample ID: SED-102 **Matrix: Solid Prep Type: Soluble**

Analysis Batch: 118382

Spike MS MS %Rec. Sample Sample Added Result Qualifier Result Qualifier D %Rec Limits Analyte Unit ₽ 369 -55 80 - 120 Sulfate 2500 2260 4 mg/Kg

Lab Sample ID: 180-36441-4 MSD Client Sample ID: SED-102 **Prep Type: Soluble**

Matrix: Solid

Analysis Batch: 118382

Sample Sample Spike MSD MSD %Rec. **RPD** Result Qualifier Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit Ö Chloride 27 366 406 mg/Kg 104 80 - 120 20

Lab Sample ID: 180-36441-4 MSD Client Sample ID: SED-102 **Prep Type: Soluble**

Matrix: Solid

Analysis Batch: 118382

MSD MSD %Rec. RPD Spike Sample Sample Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD Limit Sulfate 2500 366 3050 4 F2 158 mg/Kg 20

Method: 8315A - Carbonyl Compounds (HPLC)

Lab Sample ID: MB 640-111453/1-A Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 111485

MB MB

Analyte Result Qualifier RL MDL Unit Prepared Dil Fac Analyzed ND 50 09/07/14 12:10 09/09/14 12:44 Formaldehyde 5.0 ug/L

Lab Sample ID: LCS 640-111453/2-A Client Sample ID: Lab Control Sample

Matrix: Water

Analysis Batch: 111485 **Prep Batch: 111453** Spike LCS LCS %Rec.

Added Result Qualifier Limits Analyte Unit %Rec 150 Formaldehyde 127 ug/L 85 73 - 133

Lab Sample ID: LCSD 640-111453/3-A Client Sample ID: Lab Control Sample Dup **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 111485

LCSD LCSD Spike %Rec. RPD Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit Formaldehyde 150 146 ug/L 98 73 - 133

Lab Sample ID: 180-36441-13 MS Client Sample ID: SG-4 **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 111485 Sample Sample Spike MS MS %Rec.

Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits Formaldehyde 9.7 J 150 131 ug/L 81 40 - 142

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Prep Type: Total/NA

Prep Batch: 111453

Prep Batch: 111453

14 20

Prep Batch: 111453

Spike

Added

150

MSD MSD

132

Result Qualifier

Unit

ug/L

TestAmerica Job ID: 180-36441-1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8315A - Carbonyl Compounds (HPLC) (Continued)

Sample Sample

9.7 J

Result Qualifier

Lab Sample ID: 180-36441-13 MSD

Matrix: Water

Formaldehyde

Analyte

Analysis Batch: 111485

Client Sample ID: SG-4
Prep Type: Total/NA

Prep Batch: 111453 Rec. RPD

	%Rec.		RPD	
Rec	Limits	RPD	Limit	
81	40 142		26	

Method: In-House - Sulfonic Acids by LCMS/MS

Lab Sample ID: MB 200-76937/1-A

Matrix: Solid

Analysis Batch: 77002

Client Sample ID: Method Blank

Prep Type: Total/NA Prep Batch: 76937

мв мв Analyte Result Qualifier RL **RL** Unit D Prepared Analyzed Dil Fac ND 19 09/08/14 13:30 09/10/14 07:35 m-Benzenedisulfonic acid 19 ug/Kg p-Phenolsulfonic acid ND 19 ug/Kg 09/08/14 13:30 09/10/14 07:35 Benzenesulfonic acid ND 19 19 ug/Kg 09/08/14 13:30 09/10/14 07:35 Resorcinol ND 19 09/08/14 13:30 09/10/14 07:35 ug/Kg 19 2,3',4-Trihydroxydiphenyl ND 57 57 ug/Kg 09/08/14 13:30 09/10/14 07:35

Lab Sample ID: LCS 200-76937/3-A

Matrix: Solid

Analysis Batch: 77002

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 76937

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	97.6	95.9		ug/Kg		98	60 - 140	
p-Phenolsulfonic acid	97.6	93.5		ug/Kg		96	60 - 140	
Benzenesulfonic acid	97.6	65.0		ug/Kg		67	60 - 140	
Resorcinol	97.6	77.9		ug/Kg		80	60 - 140	
2,3',4-Trihydroxydiphenyl	97.5	64.9		ug/Kg		67	10 - 110	

Lab Sample ID: LLCS 200-76937/2-A

Matrix: Solid

Analysis Batch: 77002

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 76937

	Spike	LLCS	LLCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	19.9	20.2		ug/Kg		101	60 - 140	
p-Phenolsulfonic acid	19.9	ND		ug/Kg		86	60 - 140	
Benzenesulfonic acid	19.9	ND	*	ug/Kg		34	60 - 140	
Resorcinol	19.9	ND		ug/Kg		81	60 - 140	
2,3',4-Trihydroxydiphenyl	19.9	ND		ug/Kg		60	10 - 110	

Lab Sample ID: 180-36441-2 MS

Matrix: Solid

Analysis Batch: 77003

Client Sample ID: SED-103

Prep Type: Total/NA

Prep Batch: 76937

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	340		98.7	394	F1	ug/Kg		53	60 - 140	
p-Phenolsulfonic acid	ND		98.6	63.1		ug/Kg		64	60 - 140	
Benzenesulfonic acid	ND	*	98.6	35.3	F1	ug/Kg		36	60 - 140	
Resorcinol	ND		98.6	ND	F1	ug/Kg		0	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		98.6	ND	F1	ug/Kg		0	10 - 110	

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Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Comple Comple

Lab Sample ID: 180-36441-4 MS

Matrix: Solid

Analysis Batch: 77002

Client Sample ID: SED-102 Prep Type: Total/NA

Prep Batch: 76937

	Sample	Sample	Spike	IVIO	IVIO				70Kec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	5000		99.2	5540	4	ug/Kg		590	60 - 140	

Lab Sample ID: 180-36441-4 MS

Matrix: Solid

Analysis Batch: 77003

Client Sample ID: SED-102 Prep Type: Total/NA

Prep Batch: 76937

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
p-Phenolsulfonic acid	ND		99.2	20.5	F1	ug/Kg		21	60 - 140	
Benzenesulfonic acid	33	*	99.2	53.3	F1	ug/Kg		20	60 - 140	
Resorcinol	ND		99.2	ND	F1	ug/Kg		0	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		99.2	ND	F1	ug/Kg		0	10 - 110	

Lab Sample ID: 180-36441-4 MSD

Matrix: Solid

Analysis Batch: 77002

Client Sample ID: SED-102

Prep Type: Total/NA

Prep Batch: 76937

MSD MSD Sample Sample Spike %Rec. RPD Analyte Result Qualifier Added Result Qualifier Limits RPD Limit Unit %Rec m-Benzenedisulfonic acid 5000 98.8 4410 4 -544 60 - 140 23 ug/Kg

Lab Sample ID: 180-36441-4 MSD

Matrix: Solid

Analysis Batch: 77003

Client Sample ID: SED-102

Prep Type: Total/NA

Prep Batch: 76937

-	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
p-Phenolsulfonic acid	ND		98.7	25.6	F1	ug/Kg		26	60 - 140	22	50
Benzenesulfonic acid	33	*	98.7	34.0	F1	ug/Kg		0.5	60 - 140	44	50
Resorcinol	ND		98.7	ND	F1	ug/Kg		0	60 - 140	NC	50
2,3',4-Trihydroxydiphenyl	ND		98.7	ND	F1	ug/Kg		0	10 - 110	NC	50

Lab Sample ID: 180-36441-6 MS

Matrix: Solid

Analysis Batch: 77003

Client Sample ID: SED-101

Prep Type: Total/NA

Prep Batch: 76937

_	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
m-Benzenedisulfonic acid	140		97.7	111	F1	ug/Kg		-25	60 - 140
p-Phenolsulfonic acid	ND		97.7	ND	F1	ug/Kg		0	60 - 140
Benzenesulfonic acid	ND	*	97.7	26.7	F1	ug/Kg		27	60 - 140
Resorcinol	ND		97.7	ND	F1	ug/Kg		0	60 - 140
2,3',4-Trihydroxydiphenyl	ND		97.6	ND	F1	ug/Kg		0	10 - 110

Lab Sample ID: 180-36441-12 MS

Matrix: Solid

Analysis Batch: 77003

Client Sample ID: DUP090414

Prep Type: Total/NA

Prep Batch: 76937

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	160		100	124	F1	ug/Kg		-37	60 - 140	·
p-Phenolsulfonic acid	ND		100	ND	F1	ug/Kg		0	60 - 140	
Benzenesulfonic acid	ND	*	100	26.2	F1	ug/Kg		26	60 - 140	
Resorcinol	ND		100	ND	F1	ug/Kg		0	60 - 140	

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Sample Sample

Lab Sample ID: 180-36441-12 MS Client Sample ID: DUP090414

Matrix: Solid

Analysis Batch: 77003

Prep Type: Total/NA

Prep Batch: 76937

Result Qualifier Added Result Qualifier Analyte Unit D %Rec Limits 2,3',4-Trihydroxydiphenyl ND 100 ND F1 0 10 - 110 ug/Kg

Spike

Lab Sample ID: 180-36441-4 DU Client Sample ID: SED-102

MS MS

Matrix: Solid

Analysis Batch: 77002

Prep Type: Total/NA

Prep Batch: 76937

Sample Sample DU DU RPD Result Qualifier Result Qualifier RPD Limit Analyte Unit m-Benzenedisulfonic acid 5000 4240 ug/Kg 16 50

Lab Sample ID: 180-36441-4 DU Client Sample ID: SED-102

Matrix: Solid

Analysis Batch: 77003

Prep Type: Total/NA Prep Batch: 76937

DU DU Sample Sample RPD Result Qualifier Result Qualifier RPD Limit Analyte Unit p-Phenolsulfonic acid ND ND ug/Kg NC 50 Benzenesulfonic acid ND 33 ug/Kg NC 50 Resorcinol ND ND ug/Kg NC 50 ND ND ug/Kg NC 50 2,3',4-Trihydroxydiphenyl

Lab Sample ID: MB 200-76950/1-A

MR MR

Matrix: Water

Analysis Batch: 77000

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 76950

	IVID	IND							
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/09/14 14:38	5
p-Phenolsulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/09/14 14:38	5
Benzenesulfonic acid	ND		50	50	ug/L		09/08/14 12:45	09/09/14 14:38	5
Resorcinol	ND		50	50	ug/L		09/08/14 12:45	09/09/14 14:38	5
2,3',4-Trihydroxydiphenyl	ND		50	50	ug/L		09/08/14 12:45	09/09/14 14:38	5

Lab Sample ID: LCS 200-76950/3-A **Client Sample ID: Lab Control Sample**

Matrix: Water

Analysis Batch: 77000

Prep Type: Total/NA

Prep Batch: 76950

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	250	234		ug/L		94	60 - 140	
p-Phenolsulfonic acid	250	219		ug/L		88	60 - 140	
Benzenesulfonic acid	250	251		ug/L		100	60 - 140	
Resorcinol	250	258		ug/L		103	60 - 140	
2,3',4-Trihydroxydiphenyl	250	260		ug/L		104	10 _ 110	

Client Sample ID: Lab Control Sample Lab Sample ID: LLCS 200-76950/2-A

Matrix: Water

Analysis Batch: 77000

Prep Type: Total/NA Prep Batch: 76950

	Spike	LLCS	LLCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	 50.0	ND		ug/L		85	60 - 140	
p-Phenolsulfonic acid	50.0	ND		ug/L		97	60 - 140	
Benzenesulfonic acid	50.0	ND		ug/L		86	60 - 140	

TestAmerica Pittsburgh

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Client Sample ID: SW-5 LANGAN

Prep Type: Total/NA

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Lab Sample ID: LLCS 200-76950/2-A Client Sample ID: Lab Control Sample **Matrix: Water** Prep Type: Total/NA Prep Batch: 76950

Analysis Batch: 77000

LLCS LLCS Spike Added Result Qualifier Analyte Unit D %Rec Limits 50.0 ND 84 Resorcinol ua/L 60 - 1402,3',4-Trihydroxydiphenyl 50.0 ND ug/L 83 10 - 110

Lab Sample ID: 180-36441-1 MS Client Sample ID: SW-5 LANGAN

Matrix: Water

Prep Type: Total/NA **Analysis Batch: 77000** Prep Batch: 76950 Spike MS MS %Rec. Sample Sample Result Qualifier Added Result Qualifier Unit D %Rec Limits

Analyte m-Benzenedisulfonic acid 1300 500 1820 ug/L 111 60 - 140

Lab Sample ID: 180-36441-1 MS

Matrix: Water

Prep Batch: 76950 **Analysis Batch: 77000** Sample Sample Spike MS MS %Rec. Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits 324 ND 250 ug/L 130 60 140

p-Phenolsulfonic acid Benzenesulfonic acid ND 250 198 ug/L 79 60 - 140 ND 250 57 Resorcinol 142 F1 ug/L 60 - 140 2,3',4-Trihydroxydiphenyl ND 250 328 F1 ug/L 131 10 - 110

Lab Sample ID: 180-36441-3 MS Client Sample ID: SW-4 LANGAN Prep Type: Total/NA

Matrix: Water

Analysis Batch: 77000

Spike MS MS %Rec. Sample Sample Result Qualifier Added Result Qualifier Unit D %Rec Limits m-Benzenedisulfonic acid 1300 500 2010 E F1 ug/L 144 60 - 140

Lab Sample ID: 180-36441-3 MS Client Sample ID: SW-4 LANGAN

Matrix: Water

Analysis Batch: 77000

Spike MS MS Sample Sample %Rec. Result Qualifier Added Qualifier %Rec Analyte Result Unit p-Phenolsulfonic acid ND 250 274 60 - 140 ug/L 109 250 Benzenesulfonic acid ND 168 ug/L 67 60 - 140Resorcinol ND 250 153 ug/L 61 60 - 140 334 F1 ND 250 10 - 110 2,3',4-Trihydroxydiphenyl ug/L 134

Lab Sample ID: 180-36441-5 MS Client Sample ID: SW-3 LANGAN Prep Type: Total/NA

Matrix: Water

Analysis Batch: 77000 Prep Batch: 76950 MS MS Sample Sample Spike Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits m-Benzenedisulfonic acid 1700 750 2540 ug/L 106 60 - 140

Lab Sample ID: 180-36441-5 MS Client Sample ID: SW-3 LANGAN

Matrix: Water

Analysis Batch: 77000 Prep Batch: 76950 Sample Sample Spike MS MS %Rec. Result Qualifier Added Result Qualifier Unit D %Rec Limits p-Phenolsulfonic acid 70 250 315 98 ug/L

TestAmerica Pittsburgh

Prep Type: Total/NA

10

Prep Type: Total/NA

Prep Batch: 76950

Prep Batch: 76950

Client: ARCADIS U.S. Inc

m-Benzenedisulfonic acid

Project/Site: INDSPEC, Petrolia PA

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

1900

Lab Sample ID: 180-36441-5 MS			Client Sample ID: SW-3 LANGAN
Matrix: Water			Prep Type: Total/NA
Analysis Batch: 77000			Prep Batch: 76950
	 • "	110 110	0/5

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzenesulfonic acid	ND		250	176		ug/L		70	60 - 140	
Resorcinol	ND		250	171		ug/L		68	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		250	324	F1	ug/L		130	10 - 110	

Lab Sample ID: 180-36441-7 MS									Client Sample ID: SG-7
Matrix: Water									Prep Type: Total/NA
Analysis Batch: 77000									Prep Batch: 76950
	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits

750

Lab Sample ID: 180-36441-7 MS Client Sample ID: SG-7 Matrix: Water Prep Type: Total/NA Prep Batch: 76950 **Analysis Batch: 77000**

2650

ug/L

104

60 - 140

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
p-Phenolsulfonic acid	120		250	379		ug/L		105	60 - 140	
Benzenesulfonic acid	ND		250	177		ug/L		71	60 - 140	
Resorcinol	ND		250	173		ug/L		69	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		250	333	F1	ug/L		133	10 - 110	

Lab Sample ID: 180-36441-8 MS Client Sample ID: SG-5 **Matrix: Water** Prep Type: Total/NA Analysis Batch: 77000 Prep Batch: 76950

	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
m-Benzenedisulfonic acid	2400		1000	3630		ug/L		119	60 - 140		_

Client Sample ID: SG-5 Lab Sample ID: 180-36441-8 MS **Matrix: Water** Prep Type: Total/NA Analysis Batch: 77000 Prep Batch: 76950 Sample Sample Spike MS MS %Rec.

			Opino						701100.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
p-Phenolsulfonic acid	120		250	361		ug/L		96	60 - 140	
Benzenesulfonic acid	ND		250	190		ug/L		76	60 - 140	
Resorcinol	ND		250	185		ug/L		74	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		250	346	F1	ug/L		139	10 - 110	
	p-Phenolsulfonic acid Benzenesulfonic acid Resorcinol	Analyte Result p-Phenolsulfonic acid 120 Benzenesulfonic acid ND Resorcinol ND	p-Phenolsulfonic acid 120 Benzenesulfonic acid ND Resorcinol ND	Analyte Result Qualifier Added p-Phenolsulfonic acid 120 250 Benzenesulfonic acid ND 250 Resorcinol ND 250	Analyte Result Qualifier Added Result p-Phenolsulfonic acid 120 250 361 Benzenesulfonic acid ND 250 190 Resorcinol ND 250 185	Analyte Result p-Phenolsulfonic acid Qualifier Added Added Result Qualifier p-Phenolsulfonic acid 120 250 361 Benzenesulfonic acid ND 250 190 Resorcinol ND 250 185	Analyte Result p-Phenolsulfonic acid Qualifier Added Qualifier Result Qualifier Unit Up/L Benzenesulfonic acid ND 250 361 ug/L Resorcinol ND 250 190 ug/L	Analyte Result p-Phenolsulfonic acid Qualifier Added Qualifier Result Qualifier Unit Ug/L D Benzenesulfonic acid ND 250 190 ug/L ug/L Resorcinol ND 250 185 ug/L	Analyte Result p-Phenolsulfonic acid Qualifier Added Qualifier Result Qualifier Unit Up/L D %Rec p-Phenolsulfonic acid 120 250 361 ug/L 96 Benzenesulfonic acid ND 250 190 ug/L 76 Resorcinol ND 250 185 ug/L 74	Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits p-Phenolsulfonic acid 120 250 361 ug/L 96 60 - 140 Benzenesulfonic acid ND 250 190 ug/L 76 60 - 140 Resorcinol ND 250 185 ug/L 74 60 - 140

Lab Sample ID: 180-36441-9 MS Client Sample ID: SG-6 **Matrix: Water** Prep Type: Total/NA Analysis Batch: 77000

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	130		250	386		ug/L		103	60 - 140	
p-Phenolsulfonic acid	ND		250	235		ug/L		94	60 - 140	
Benzenesulfonic acid	ND		250	145	F1	ug/L		58	60 - 140	
Resorcinol	ND		250	178		ug/L		71	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		250	326	F1	ug/L		130	10 - 110	

TestAmerica Pittsburgh

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Lab Sample ID: 180-36441-10 MS Client Sample ID: SW-2 LANGAN **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 77000 Prep Batch: 76950

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	130		250	397		ug/L		107	60 - 140	
p-Phenolsulfonic acid	ND		250	208		ug/L		83	60 - 140	
Benzenesulfonic acid	ND		250	145	F1	ug/L		58	60 - 140	
Resorcinol	ND		250	178		ug/L		71	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		250	307	F1	ug/L		123	10 - 110	
	m-Benzenedisulfonic acid p-Phenolsulfonic acid Benzenesulfonic acid Resorcinol	AnalyteResultm-Benzenedisulfonic acid130p-Phenolsulfonic acidNDBenzenesulfonic acidNDResorcinolND	m-Benzenedisulfonic acid 130 p-Phenolsulfonic acid ND Benzenesulfonic acid ND Resorcinol ND	Analyte Result Qualifier Added m-Benzenedisulfonic acid 130 250 p-Phenolsulfonic acid ND 250 Benzenesulfonic acid ND 250 Resorcinol ND 250	Analyte Result Qualifier Added Result m-Benzenedisulfonic acid 130 250 397 p-Phenolsulfonic acid ND 250 208 Benzenesulfonic acid ND 250 145 Resorcinol ND 250 178	Analyte Result Qualifier Added Result Qualifier m-Benzenedisulfonic acid 130 250 397 p-Phenolsulfonic acid ND 250 208 Benzenesulfonic acid ND 250 145 F1 Resorcinol ND 250 178	Analyte Result Qualifier Added Result Qualifier Unit m-Benzenedisulfonic acid 130 250 397 ug/L p-Phenolsulfonic acid ND 250 208 ug/L Benzenesulfonic acid ND 250 145 F1 ug/L Resorcinol ND 250 178 ug/L	Analyte Result Qualifier Added Result Qualifier Unit D m-Benzenedisulfonic acid 130 250 397 ug/L p-Phenolsulfonic acid ND 250 208 ug/L Benzenesulfonic acid ND 250 145 F1 ug/L Resorcinol ND 250 178 ug/L	Analyte Result Qualifier Added Result Qualifier Unit D %Rec m-Benzenedisulfonic acid 130 250 397 ug/L 107 p-Phenolsulfonic acid ND 250 208 ug/L 83 Benzenesulfonic acid ND 250 145 F1 ug/L 58 Resorcinol ND 250 178 ug/L 71	Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits m-Benzenedisulfonic acid 130 250 397 ug/L 107 60 - 140 p-Phenolsulfonic acid ND 250 208 ug/L 83 60 - 140 Benzenesulfonic acid ND 250 145 F1 ug/L 58 60 - 140 Resorcinol ND 250 178 ug/L 71 60 - 140

Client Sample ID: SW-1 LANGAN Lab Sample ID: 180-36441-11 MS **Matrix: Water** Prep Type: Total/NA Prep Batch: 76950

Analysis Batch: 77000

Sa	mple Sample	Spike	MS	MS				%Rec.	
Analyte R	esult Qualifie	r Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	130	250	460		ug/L		130	60 - 140	
p-Phenolsulfonic acid	ND	250	230		ug/L		92	60 - 140	
Benzenesulfonic acid	ND	250	146	F1	ug/L		58	60 - 140	
Resorcinol	ND	250	178		ug/L		71	60 - 140	
2,3',4-Trihydroxydiphenyl	ND	250	308	F1	ug/L		123	10 - 110	

Lab Sample ID: 180-36441-13 MS Client Sample ID: SG-4 **Matrix: Water** Prep Type: Total/NA **Analysis Batch: 77003** Prep Batch: 76950

Sample Sample Spike MS MS Analyte Result Qualifier Added Result Qualifier %Rec Limits Unit D

m-Benzenedisulfonic acid 3700 1250 5330 E ug/L 130 60 - 140

Lab Sample ID: 180-36441-13 MS **Matrix: Water**

Analysis Batch: 77108

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
p-Phenolsulfonic acid	150		250	388		ug/L		94	60 _ 140	_
Benzenesulfonic acid	54		250	207		ug/L		61	60 _ 140	
Resorcinol	ND		250	172		ug/L		69	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		250	367	F1	ug/L		147	10 - 110	

Client Sample ID: SG-4 Lab Sample ID: 180-36441-13 MSD Prep Type: Total/NA **Matrix: Water Analysis Batch: 77003** Prep Batch: 76950 Sample Sample Spike MSD MSD %Rec. **RPD**

Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit m-Benzenedisulfonic acid 3700 1250 5570 E F1 ug/L 150 60 - 140 50

Lab Sample ID: 180-36441-13 MSD

Matrix: Water									Prep T	ype: To	tal/NA
Analysis Batch: 77108									Prep	Batch:	76950
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
p-Phenolsulfonic acid	150		250	378		ug/L		89	60 - 140	3	50
Benzenesulfonic acid	54		250	213		ug/L		63	60 - 140	3	50
Resorcinol	ND		250	209		ug/L		84	60 - 140	20	50

TestAmerica Pittsburgh

Client Sample ID: SG-4

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Client Sample ID: SG-4

Prep Type: Total/NA Prep Batch: 76950

Client Sample ID: SG-3

Client Sample ID: SG-8

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-36441-14 MS

Lab Sample ID: 180-36441-15 MS

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Lab Sample ID: 180-36441-13 MS Matrix: Water	D								Client Sar Prep T	mple ID: ype: Tot	
Analysis Batch: 77108									•	Batch:	
_	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
2,3',4-Trihydroxydiphenyl	ND		250	361	F1	ug/L		145	10 - 110	2	50

Lab Sample ID: 180-36441-14 M Matrix: Water	S									nple ID: SG-3 pe: Total/NA
Analysis Batch: 77108									Prep	Batch: 76950
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	3100		1000	4480	E	ug/L		136	60 - 140	

Matrix: Water Analysis Batch: 77108										oe: Total/NA Batch: 76950
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
p-Phenolsulfonic acid	180		250	415		ug/L		93	60 - 140	
Benzenesulfonic acid	ND		250	196		ug/L		78	60 - 140	
Resorcinol	ND		250	219		ug/L		88	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		250	353	F1	ug/L		141	10 - 110	

Matrix: Water									Prep 1	Гуре: Total/NA
Analysis Batch: 77108									Prep	Batch: 76950
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	1000		500	1510		ug/L		94	60 - 140	

Lab Sample ID: 180-36441-15 MS Matrix: Water	3								Prep Ty	nple ID: SG-8 /pe: Total/NA
Analysis Batch: 77108									Prep	Batch: 76950
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
p-Phenolsulfonic acid	550		250	773		ug/L		89	60 - 140	
Ponzonosulfonio goid	ND		250	150		ua/l		64	60 140	

Lab Sample ID: 180-36441-16 MS Matrix: Water	5					Client Sample ID: SW-1 Prep Type: Total/NA
2,3',4-Trihydroxydiphenyl	ND	250	384 F1	ug/L	153	10 _ 110
Resorcinol	300	250	520	ug/L	87	60 - 140
Benzenesulfonic acid	ND	250	159	ug/L	64	60 - 140

Analysis Batch: 77108									Pre) Batch: / 6950
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	100		250	407		ug/L		122	60 - 140	
p-Phenolsulfonic acid	ND		250	229		ug/L		92	60 - 140	
Benzenesulfonic acid	ND		250	142	F1	ug/L		57	60 - 140	
Resorcinol	ND		250	179		ug/L		72	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		250	340	F1	ug/L		136	10 - 110	

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TestAmerica Pittsburgh

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Sample Sample

110

ND

ND

ND

ND

Result Qualifier

Lab Sample ID: 180-36441-17 MS

Matrix: Water

Analysis Batch: 77108

Client Sample ID: SG-2 Prep Type: Total/NA Prep Batch: 76950

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	110		250	393		ug/L		113	60 - 140	
p-Phenolsulfonic acid	ND		250	225		ug/L		90	60 - 140	
Benzenesulfonic acid	ND		250	140	F1	ug/L		56	60 - 140	
Resorcinol	ND		250	199		ug/L		80	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		250	340	F1	ug/L		136	10 - 110	

MS MS

417

244

199

147 F1

324 F1

ug/L

Result Qualifier

Spike

Added

250

250

250

250

250

Lab Sample ID: 180-36441-18 MS

Matrix: Water

Analyte

Resorcinol

Analysis Batch: 77108

m-Benzenedisulfonic acid

2,3',4-Trihydroxydiphenyl

p-Phenolsulfonic acid

Benzenesulfonic acid

Client Sample ID: SH-1 Prep Type: Total/NA Prep Batch: 76950

%Rec Limits Unit ug/L 123 60 - 140 98 60 - 140 ug/L ug/L 59 60 - 14079 ug/L 60 - 140

130

10 - 110

Lab Sample ID: 180-36441-19 MS

Matrix: Water

Analysis Batch: 77192

Client Sample ID: SG-1 Prep Type: Total/NA Prep Batch: 76950

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	120		250	472		ug/L		139	60 - 140	
p-Phenolsulfonic acid	ND		250	297		ug/L		119	60 - 140	
Benzenesulfonic acid	ND		250	173		ug/L		69	60 - 140	
Resorcinol	ND		250	192		ug/L		77	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		250	330	F1	ug/L		132	10 - 110	

Lab Sample ID: 180-36441-20 MS

Matrix: Water

Analysis Batch: 77192

Client Sample ID: EB090514

Prep Type: Total/NA

_	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	ND		250	334		ug/L		134	60 - 140	
p-Phenolsulfonic acid	ND		250	296		ug/L		118	60 - 140	
Benzenesulfonic acid	ND		250	251		ug/L		100	60 - 140	
Resorcinol	ND		250	251		ug/L		100	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		250	246		ug/L		98	10 - 110	

Lab Sample ID: 180-36441-21 MS

Matrix: Water

Analysis Batch: 77003

Client Sample ID: DUP090514

Prep Type: Total/NA Prep Batch: 76950

Alialysis Datcil. 11005									FIE	p Dateii.	. 1093
	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
m-Benzenedisulfonic acid	3200		1250	4440		ug/L		102	60 - 140		

TestAmerica Pittsburgh

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Prep Batch: 76950

QC Sample Results

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Lab Sample ID: 180-36441-21 MS			Client Sample ID: DUP090514
Matrix: Water			Prep Type: Total/NA
Analysis Batch: 77192			Prep Batch: 76950
		-	 n/ -

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
p-Phenolsulfonic acid	240		250	551		ug/L		122	60 - 140	
Benzenesulfonic acid	51		250	245		ug/L		78	60 - 140	
Resorcinol	ND		250	233		ug/L		93	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		250	352	F1	ug/L		141	10 - 110	

Lab Sample ID: 180-36441-13 D	U						Client Sample II): SG-4
Matrix: Water							Prep Type: To	otal/NA
Analysis Batch: 77003							Prep Batch	: 76950
	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
m-Benzenedisulfonic acid	3700		 4040		ug/L			50

Lab Sample ID: 180-36441-13 Matrix: Water Analysis Batch: 77108	3 DU						Client Sample ID Prep Type: To Prep Batch:	tal/NA
	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
p-Phenolsulfonic acid	150		144		ug/L		6	50
Benzenesulfonic acid	54		51.6		ug/L		4	50
Resorcinol	ND		ND		ug/L		NC	50
2,3',4-Trihydroxydiphenyl	ND		ND		ug/L		NC	50

2

3

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7

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10

12

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

GC/MS VOA

Analysis Batch: 117276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-2	SED-103	Total/NA	Solid	8260B	117277
180-36441-4	SED-102	Total/NA	Solid	8260B	117277
180-36441-4 MS	SED-102	Total/NA	Solid	8260B	117277
180-36441-4 MSD	SED-102	Total/NA	Solid	8260B	117277
180-36441-6	SED-101	Total/NA	Solid	8260B	117277
180-36441-12	DUP090414	Total/NA	Solid	8260B	117277
LCS 180-117277/2-A	Lab Control Sample	Total/NA	Solid	8260B	117277
MB 180-117277/1-A	Method Blank	Total/NA	Solid	8260B	117277

Prep Batch: 117277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-2	SED-103	Total/NA	Solid	5030B	-
180-36441-4	SED-102	Total/NA	Solid	5030B	
180-36441-4 MS	SED-102	Total/NA	Solid	5030B	
180-36441-4 MSD	SED-102	Total/NA	Solid	5030B	
180-36441-6	SED-101	Total/NA	Solid	5030B	
180-36441-12	DUP090414	Total/NA	Solid	5030B	
LCS 180-117277/2-A	Lab Control Sample	Total/NA	Solid	5030B	
MB 180-117277/1-A	Method Blank	Total/NA	Solid	5030B	

Analysis Batch: 117991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-1	SW-5 LANGAN	Total/NA	Water	8260C	
180-36441-3	SW-4 LANGAN	Total/NA	Water	8260C	
180-36441-9	SG-6	Total/NA	Water	8260C	
LCS 180-117991/7	Lab Control Sample	Total/NA	Water	8260C	
MB 180-117991/6	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 118072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
180-36441-5	SW-3 LANGAN	Total/NA	Water	8260C	
180-36441-7	SG-7	Total/NA	Water	8260C	
180-36441-8	SG-5	Total/NA	Water	8260C	
180-36441-10	SW-2 LANGAN	Total/NA	Water	8260C	
180-36441-11	SW-1 LANGAN	Total/NA	Water	8260C	
180-36441-13	SG-4	Total/NA	Water	8260C	
180-36441-13 MS	SG-4	Total/NA	Water	8260C	
180-36441-13 MSD	SG-4	Total/NA	Water	8260C	
180-36441-16	SW-1	Total/NA	Water	8260C	
180-36441-17	SG-2	Total/NA	Water	8260C	
180-36441-18	SH-1	Total/NA	Water	8260C	
180-36441-19	SG-1	Total/NA	Water	8260C	
180-36441-20	EB090514	Total/NA	Water	8260C	
180-36441-22	TRIP BLANKS	Total/NA	Water	8260C	
LCS 180-118072/8	Lab Control Sample	Total/NA	Water	8260C	
MB 180-118072/5	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 118218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-14	SG-3	Total/NA	Water	8260C	
180-36441-14 MS	SG-3	Total/NA	Water	8260C	

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Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-36441-1 Project/Site: INDSPEC, Petrolia PA

GC/MS VOA (Continued)

Analysis Batch: 118218 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-14 MSD	SG-3	Total/NA	Water	8260C	
180-36441-15	SG-8	Total/NA	Water	8260C	
180-36441-21	DUP090514	Total/NA	Water	8260C	
LCS 180-118218/9	Lab Control Sample	Total/NA	Water	8260C	
MB 180-118218/6	Method Blank	Total/NA	Water	8260C	

HPLC/IC

Prep Batch: 111453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
180-36441-13	SG-4	Total/NA	Water	8315_W_Prep	
180-36441-13 MS	SG-4	Total/NA	Water	8315_W_Prep	
180-36441-13 MSD	SG-4	Total/NA	Water	8315_W_Prep	
180-36441-14	SG-3	Total/NA	Water	8315_W_Prep	
180-36441-15	SG-8	Total/NA	Water	8315_W_Prep	
180-36441-16	SW-1	Total/NA	Water	8315_W_Prep	
180-36441-17	SG-2	Total/NA	Water	8315_W_Prep	
180-36441-18	SH-1	Total/NA	Water	8315_W_Prep	
180-36441-19	SG-1	Total/NA	Water	8315_W_Prep	
180-36441-20	EB090514	Total/NA	Water	8315_W_Prep	
180-36441-21	DUP090514	Total/NA	Water	8315_W_Prep	
LCS 640-111453/2-A	Lab Control Sample	Total/NA	Water	8315_W_Prep	
LCSD 640-111453/3-A	Lab Control Sample Dup	Total/NA	Water	8315_W_Prep	
MB 640-111453/1-A	Method Blank	Total/NA	Water	8315_W_Prep	

Analysis Batch: 111485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-13	SG-4	Total/NA	Water	8315A	111453
180-36441-13 MS	SG-4	Total/NA	Water	8315A	111453
180-36441-13 MSD	SG-4	Total/NA	Water	8315A	111453
180-36441-14	SG-3	Total/NA	Water	8315A	111453
180-36441-15	SG-8	Total/NA	Water	8315A	111453
180-36441-16	SW-1	Total/NA	Water	8315A	111453
180-36441-17	SG-2	Total/NA	Water	8315A	111453
180-36441-18	SH-1	Total/NA	Water	8315A	111453
180-36441-19	SG-1	Total/NA	Water	8315A	111453
180-36441-20	EB090514	Total/NA	Water	8315A	111453
180-36441-21	DUP090514	Total/NA	Water	8315A	111453
LCS 640-111453/2-A	Lab Control Sample	Total/NA	Water	8315A	111453
LCSD 640-111453/3-A	Lab Control Sample Dup	Total/NA	Water	8315A	111453
MB 640-111453/1-A	Method Blank	Total/NA	Water	8315A	111453

Analysis Batch: 117995

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-2	SED-103	Soluble	Solid	300.0	118001
180-36441-4 MS	SED-102	Soluble	Solid	300.0	118001
180-36441-4 MSD	SED-102	Soluble	Solid	300.0	118001
180-36441-6	SED-101	Soluble	Solid	300.0	118001
180-36441-12	DUP090414	Soluble	Solid	300.0	118001
LB3 180-118001/1-A	Method Blank	Soluble	Solid	300.0	118001

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

HPLC/IC (Continued)

Analysis Batch: 117995 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-118001/2-A	Lab Control Sample	Soluble	Solid	300.0	118001

Leach Batch: 118001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-2	SED-103	Soluble	Solid	DI Leach	
180-36441-4	SED-102	Soluble	Solid	DI Leach	
180-36441-4 MS	SED-102	Soluble	Solid	DI Leach	
180-36441-4 MSD	SED-102	Soluble	Solid	DI Leach	
180-36441-6	SED-101	Soluble	Solid	DI Leach	
180-36441-12	DUP090414	Soluble	Solid	DI Leach	
LB3 180-118001/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 180-118001/2-A	Lab Control Sample	Soluble	Solid	DI Leach	

Analysis Batch: 118382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-1	SW-5 LANGAN	Total/NA	Water	300.0	_
180-36441-3	SW-4 LANGAN	Total/NA	Water	300.0	
180-36441-4	SED-102	Soluble	Solid	300.0	118001
180-36441-4 MS	SED-102	Soluble	Solid	300.0	118001
180-36441-4 MS	SED-102	Soluble	Solid	300.0	118001
180-36441-4 MSD	SED-102	Soluble	Solid	300.0	118001
180-36441-4 MSD	SED-102	Soluble	Solid	300.0	118001
180-36441-5	SW-3 LANGAN	Total/NA	Water	300.0	
180-36441-7	SG-7	Total/NA	Water	300.0	
180-36441-7 MS	SG-7	Total/NA	Water	300.0	
180-36441-7 MSD	SG-7	Total/NA	Water	300.0	
180-36441-8	SG-5	Total/NA	Water	300.0	
180-36441-9	SG-6	Total/NA	Water	300.0	
180-36441-10	SW-2 LANGAN	Total/NA	Water	300.0	
180-36441-11	SW-1 LANGAN	Total/NA	Water	300.0	
180-36441-13	SG-4	Total/NA	Water	300.0	
180-36441-13 MS	SG-4	Total/NA	Water	300.0	
180-36441-13 MSD	SG-4	Total/NA	Water	300.0	
180-36441-14	SG-3	Total/NA	Water	300.0	
180-36441-15	SG-8	Total/NA	Water	300.0	
180-36441-16	SW-1	Total/NA	Water	300.0	
180-36441-17	SG-2	Total/NA	Water	300.0	
180-36441-18	SH-1	Total/NA	Water	300.0	
180-36441-19	SG-1	Total/NA	Water	300.0	
180-36441-20	EB090514	Total/NA	Water	300.0	
180-36441-21	DUP090514	Total/NA	Water	300.0	
LB3 180-118001/1-A	Method Blank	Soluble	Solid	300.0	118001
LCS 180-118001/2-A	Lab Control Sample	Soluble	Solid	300.0	118001
_CS 180-118382/5	Lab Control Sample	Total/NA	Water	300.0	
MB 180-118382/6	Method Blank	Total/NA	Water	300.0	

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

LCMS

Prep Batch: 76937

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
180-36441-2	SED-103	Total/NA	Solid	In House	_
180-36441-2 MS	SED-103	Total/NA	Solid	In House	
180-36441-4	SED-102	Total/NA	Solid	In House	
180-36441-4 DU	SED-102	Total/NA	Solid	In House	
180-36441-4 MS	SED-102	Total/NA	Solid	In House	
180-36441-4 MSD	SED-102	Total/NA	Solid	In House	
180-36441-6	SED-101	Total/NA	Solid	In House	
180-36441-6 MS	SED-101	Total/NA	Solid	In House	
180-36441-12	DUP090414	Total/NA	Solid	In House	
180-36441-12 MS	DUP090414	Total/NA	Solid	In House	
LCS 200-76937/3-A	Lab Control Sample	Total/NA	Solid	In House	
LLCS 200-76937/2-A	Lab Control Sample	Total/NA	Solid	In House	
MB 200-76937/1-A	Method Blank	Total/NA	Solid	In House	

Prep Batch: 76950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
180-36441-1	SW-5 LANGAN	Total/NA	Water	In House	
180-36441-1 MS	SW-5 LANGAN	Total/NA	Water	In House	
180-36441-3	SW-4 LANGAN	Total/NA	Water	In House	
180-36441-3 MS	SW-4 LANGAN	Total/NA	Water	In House	
180-36441-5	SW-3 LANGAN	Total/NA	Water	In House	
180-36441-5 MS	SW-3 LANGAN	Total/NA	Water	In House	
180-36441-7	SG-7	Total/NA	Water	In House	
180-36441-7 MS	SG-7	Total/NA	Water	In House	
180-36441-8	SG-5	Total/NA	Water	In House	
180-36441-8 MS	SG-5	Total/NA	Water	In House	
180-36441-9	SG-6	Total/NA	Water	In House	
180-36441-9 MS	SG-6	Total/NA	Water	In House	
180-36441-10	SW-2 LANGAN	Total/NA	Water	In House	
180-36441-10 MS	SW-2 LANGAN	Total/NA	Water	In House	
180-36441-11	SW-1 LANGAN	Total/NA	Water	In House	
180-36441-11 MS	SW-1 LANGAN	Total/NA	Water	In House	
180-36441-13	SG-4	Total/NA	Water	In House	
180-36441-13 DU	SG-4	Total/NA	Water	In House	
180-36441-13 MS	SG-4	Total/NA	Water	In House	
180-36441-13 MSD	SG-4	Total/NA	Water	In House	
180-36441-14	SG-3	Total/NA	Water	In House	
180-36441-14 MS	SG-3	Total/NA	Water	In House	
180-36441-15	SG-8	Total/NA	Water	In House	
180-36441-15 MS	SG-8	Total/NA	Water	In House	
180-36441-16	SW-1	Total/NA	Water	In House	
180-36441-16 MS	SW-1	Total/NA	Water	In House	
180-36441-17	SG-2	Total/NA	Water	In House	
180-36441-17 MS	SG-2	Total/NA	Water	In House	
180-36441-18	SH-1	Total/NA	Water	In House	
180-36441-18 MS	SH-1	Total/NA	Water	In House	
180-36441-19	SG-1	Total/NA	Water	In House	
180-36441-19 MS	SG-1	Total/NA	Water	In House	
180-36441-20	EB090514	Total/NA	Water	In House	
180-36441-20 MS	EB090514	Total/NA	Water	In House	
180-36441-21	DUP090514	Total/NA	Water	In House	

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

LCMS (Continued)

Prep Batch: 76950 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-21 MS	DUP090514	Total/NA	Water	In House	
LCS 200-76950/3-A	Lab Control Sample	Total/NA	Water	In House	
LLCS 200-76950/2-A	Lab Control Sample	Total/NA	Water	In House	
MB 200-76950/1-A	Method Blank	Total/NA	Water	In House	

Analysis Batch: 77000

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-1	SW-5 LANGAN	Total/NA	Water	In-House	76950
180-36441-1	SW-5 LANGAN	Total/NA	Water	In-House	76950
180-36441-1 MS	SW-5 LANGAN	Total/NA	Water	In-House	76950
180-36441-1 MS	SW-5 LANGAN	Total/NA	Water	In-House	76950
180-36441-3	SW-4 LANGAN	Total/NA	Water	In-House	76950
180-36441-3	SW-4 LANGAN	Total/NA	Water	In-House	76950
180-36441-3 MS	SW-4 LANGAN	Total/NA	Water	In-House	76950
180-36441-3 MS	SW-4 LANGAN	Total/NA	Water	In-House	76950
180-36441-5	SW-3 LANGAN	Total/NA	Water	In-House	76950
180-36441-5	SW-3 LANGAN	Total/NA	Water	In-House	76950
180-36441-5 MS	SW-3 LANGAN	Total/NA	Water	In-House	76950
180-36441-5 MS	SW-3 LANGAN	Total/NA	Water	In-House	76950
180-36441-7	SG-7	Total/NA	Water	In-House	76950
180-36441-7	SG-7	Total/NA	Water	In-House	76950
180-36441-7 MS	SG-7	Total/NA	Water	In-House	76950
180-36441-7 MS	SG-7	Total/NA	Water	In-House	76950
180-36441-8	SG-5	Total/NA	Water	In-House	76950
180-36441-8	SG-5	Total/NA	Water	In-House	76950
180-36441-8 MS	SG-5	Total/NA	Water	In-House	76950
180-36441-8 MS	SG-5	Total/NA	Water	In-House	76950
180-36441-9	SG-6	Total/NA	Water	In-House	76950
180-36441-9 MS	SG-6	Total/NA	Water	In-House	76950
180-36441-10	SW-2 LANGAN	Total/NA	Water	In-House	76950
180-36441-10 MS	SW-2 LANGAN	Total/NA	Water	In-House	76950
180-36441-11	SW-1 LANGAN	Total/NA	Water	In-House	76950
180-36441-11 MS	SW-1 LANGAN	Total/NA	Water	In-House	76950
_CS 200-76950/3-A	Lab Control Sample	Total/NA	Water	In-House	76950
LCS 200-76950/2-A	Lab Control Sample	Total/NA	Water	In-House	76950
MB 200-76950/1-A	Method Blank	Total/NA	Water	In-House	76950

Analysis Batch: 77002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-4	SED-102	Total/NA	Solid	In-House	76937
180-36441-4 DU	SED-102	Total/NA	Solid	In-House	76937
180-36441-4 MS	SED-102	Total/NA	Solid	In-House	76937
180-36441-4 MSD	SED-102	Total/NA	Solid	In-House	76937
LCS 200-76937/3-A	Lab Control Sample	Total/NA	Solid	In-House	76937
LLCS 200-76937/2-A	Lab Control Sample	Total/NA	Solid	In-House	76937
MB 200-76937/1-A	Method Blank	Total/NA	Solid	In-House	76937

Analysis Batch: 77003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-2	SED-103	Total/NA	Solid	In-House	76937
180-36441-2 MS	SED-103	Total/NA	Solid	In-House	76937

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Project/Site: INDSPEC, Petrolia PA

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-36441-1

LCMS (Continued)

Analysis Batch: 77003 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-4	SED-102	Total/NA	Solid	In-House	76937
180-36441-4 DU	SED-102	Total/NA	Solid	In-House	76937
180-36441-4 MS	SED-102	Total/NA	Solid	In-House	76937
180-36441-4 MSD	SED-102	Total/NA	Solid	In-House	76937
180-36441-6	SED-101	Total/NA	Solid	In-House	76937
180-36441-6 MS	SED-101	Total/NA	Solid	In-House	76937
180-36441-12	DUP090414	Total/NA	Solid	In-House	76937
180-36441-12 MS	DUP090414	Total/NA	Solid	In-House	76937
180-36441-13	SG-4	Total/NA	Water	In-House	76950
180-36441-13 DU	SG-4	Total/NA	Water	In-House	76950
180-36441-13 MS	SG-4	Total/NA	Water	In-House	76950
180-36441-13 MSD	SG-4	Total/NA	Water	In-House	76950
180-36441-21	DUP090514	Total/NA	Water	In-House	76950
180-36441-21 MS	DUP090514	Total/NA	Water	In-House	76950

Analysis Batch: 77108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-13	SG-4	Total/NA	Water	In-House	76950
180-36441-13 DU	SG-4	Total/NA	Water	In-House	76950
180-36441-13 MS	SG-4	Total/NA	Water	In-House	76950
180-36441-13 MSD	SG-4	Total/NA	Water	In-House	76950
180-36441-14	SG-3	Total/NA	Water	In-House	76950
180-36441-14	SG-3	Total/NA	Water	In-House	76950
180-36441-14 MS	SG-3	Total/NA	Water	In-House	76950
180-36441-14 MS	SG-3	Total/NA	Water	In-House	76950
180-36441-15	SG-8	Total/NA	Water	In-House	76950
180-36441-15	SG-8	Total/NA	Water	In-House	76950
180-36441-15 MS	SG-8	Total/NA	Water	In-House	76950
180-36441-15 MS	SG-8	Total/NA	Water	In-House	76950
180-36441-16	SW-1	Total/NA	Water	In-House	76950
180-36441-16 MS	SW-1	Total/NA	Water	In-House	76950
180-36441-17	SG-2	Total/NA	Water	In-House	76950
180-36441-17 MS	SG-2	Total/NA	Water	In-House	76950
180-36441-18	SH-1	Total/NA	Water	In-House	76950
180-36441-18 MS	SH-1	Total/NA	Water	In-House	76950

Analysis Batch: 77192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-19	SG-1	Total/NA	Water	In-House	76950
180-36441-19 MS	SG-1	Total/NA	Water	In-House	76950
180-36441-20	EB090514	Total/NA	Water	In-House	76950
180-36441-20 MS	EB090514	Total/NA	Water	In-House	76950
180-36441-21	DUP090514	Total/NA	Water	In-House	76950
180-36441-21 MS	DUP090514	Total/NA	Water	In-House	76950

General Chemistry

Analysis Batch: 117578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-2	SED-103	Total/NA	Solid	2540G	

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36441-1

General Chemistry (Continued)

Analysis Batch: 117578 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36441-4	SED-102	Total/NA	Solid	2540G	
180-36441-6	SED-101	Total/NA	Solid	2540G	
180-36441-12	DUP090414	Total/NA	Solid	2540G	

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Date/Time:

Company:

Received in Laboratory by:

Date/Time:

Company:

Chain of Custody Record

052735 TestAmerica

Pittsburgh, Ph 15239 Phone: 412,963,7958 Faz: 412,963,2478	Regulatory Program:	DW NPDES	RCRA Other:		TestAmerica Laboratories, Inc. TAL-8210 (0713)
Client Contact		Sk	1,1,1	Date: Q, S, 14	COC No:
Company Name: AP CPD IS	743-	9180	Lab Contact: Vr Bortot	Carrier: Felox	of COCs
`	Turnaro	Time	100		Sampler: 2020
City/State/Zip: 1, 7exford, P.A. 15090	☐ CALENDAR DAYS ☐ WO	WORKING DAYS	18		For Lab Use Only:
1 11	TAT if different:)(N		k-in Client:
Project Name: Total Acount - Petrolina	2 weeks		_		sampling:
olia, pA	2 days		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		/ SDG No.:
PO#	1 day		×1,2 €-(9k)	180-36441 Chain of Custody	- 10 miles
Sample Identification	Sample Sample Type (C=Comp, Date Time G=Grab)	# of # Matrix Cont.	M mirored Sa		Sample Specific Notes:
Sw-S Langan	941H 1135 G	THE STATE OF THE S	11 /5 48		200
Sed-103	1220	50 2	XXX		
SW-4 Langan	1335 (2	17 LM	XXXX		
201-102 U	1310 C	50 9	XXX		
Pangan -3 Langan	1 1330 G	MT 4	XXXVI		
Sed-10) 1400 C	50 3	XXX		
28-7	1 1430 6	WT 4	VINXX		
SGS	5151	7 13	XXX		
9-98	5) 0091	M 4	MXXX		
Sw-2 Langan	1615 6	WTH			
Sw-1 Langan	9 0891	MITIM	MXX		
		So 3	XXX		
Preservation Used: 1=1ce, 2=HCl; 3=H2SO4; 4=HNO3;	s: 5=NaOH; 6= Other				
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Plea Commers's Section if the lab is to dispose of the sample.	Please List any EPA Waste Codes for the sample in the	he sample in the		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	d longer than 1 month)
Mon-Hazard Hammable Skin Irritant	☐ Poison B ☐ Unknown	wn	Return to Client	Disposal by Lab	Months
Special Instructions/QC Requirements & Comments:					
Custody Seals Intact: Yes No	Custody Seal No.:		Cooler Temp. (°C): Obs'd	bs'd:	Therm ID No.:
Relinquished by Angle	Company:	Date/Time: //	Received by:	Company:	Date/P. 6 10 91
REING Ished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Skin Irritant

☐ Flammable

Non-Hazard

Special Instructions/QC Requirements & Comments:

Custody Seals Intact

Rejuduished by:

comments Section if the lab is to dispose of the sample.

ossible Hazard Identification:

Dup890514 Trip BlanKS

FR690514

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THE LEADER IN ENVIRONMENTAL TESTING TESTANG TESTANG. **POSTATION** TAL-8210 (0713) Sample Specific Notes: (<u>)</u> Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) For Lab Use Only Sampler 106 oť ab Sampling: Job / SDG No.: Months Nalk-in Client: Date/Time: Date/Time: Date/Time ል Archive for 052722 S W Company: 3 Company Date: Q_1S_1 Company Visposal by Lab Carrier: Received May Worker Rot fot 2 Received in Laboratory by: Return to Client Site Contact Lab Contact: RCRA re any semples from a listed EPA Hazardous. Waste? Please List any EPA Waste Codes for the sample in the Z. # of Cont. Date/Time: ☐ WORKING DAYS Hanish Matrix 3 13 MO Analysis Turnaround Time 3 3 Unknown Type (C=Comp, G=Grab) B Regulatory Program: TAT if different from Below φ Project Manager: Mgr < Tel/Fax: 724-743 1 week 2 days 1 day 230 030 235 100 Sample P.S. 1410955 74 35 CALENDAR DAYS 50 ARCADIS Preservation Used: 1= lcg, 2= HCl; 3= H2SO4* 4=HNO3; 5=NaOH; 6= Other Custody Seal No.: ☐ Poison B Sample Company: Company:

Chain of Custody Record

Pittsburch, Pt 15238 Phone: 412 963,7058 Fax: 412,963,2478

Client Contact

Wallace Rh TRCAP IS

City/State/Zip:

Phone: ă,

Company Name: Address: 604 Project Name: Tods & C - Fetalia Site: Petrolia, PA PO#

Sample Identification

The state of the s	
	1 fights briter

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Login Number: 36441 List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Watson, Debbie

Answer	Comment
True	
N/A	
	True True True True True True True True

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THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pittsburgh 301 Alpha Drive RIDC Park Pittsburgh, PA 15238 Tel: (412)963-7058

TestAmerica Job ID: 180-36402-1

Client Project/Site: INDSPEC, Petrolia PA

For:

ARCADIS U.S. Inc 6041 Wallace Road Extension Suite 300 Wexford, Pennsylvania 15090

Attn: Chris Bonessi

Authorized for release by: 10/9/2014 4:18:50 PM

ronce Bortot

Veronica Bortot, Senior Project Manager (412)963-2435

veronica.bortot@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: ARCADIS U.S. Inc Project/Site: INDSPEC, Petrolia PA TestAmerica Job ID: 180-36402-1

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Case Narrative

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36402-1

Job ID: 180-36402-1

Laboratory: TestAmerica Pittsburgh

Narrative

CASE NARRATIVE

Client: ARCADIS U.S. Inc

Project: INDSPEC, Petrolia PA

Report Number: 180-36402-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 09/05/2014; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.7 C.

FORMALDEHYDE

Samples Sed-103 (180-36402-2), Sed-102 (180-36402-4), Sed-101 (180-36402-6) and DUP 090414 (180-36402-12) were analyzed for formaldehyde in accordance with EPA SW-846 Method 8315A. The samples were prepared and analyzed on 09/10/2014.

Samples SW-5 Langan (180-36402-1), SW-4 Langan (180-36402-3), SW-3 Langan (180-36402-5), SG-7 (180-36402-7), SG-5 (180-36402-8), SG-6 (180-36402-9), SW-2 Langan (180-36402-10) and SW-1 Langan (180-36402-11) were analyzed for formaldehyde in accordance with EPA SW-846 Method 8315A. The samples were prepared on 09/05/2014 and analyzed on 09/08/2014 and 09/09/2014.

Reanalysis of the following samples was performed outside of the recommended three day 8315A analytical holding time due to a failing CCV in the original analytical run.: (180-36402-8), (180-36402-9), (180-36402-10), (180-36402-11), SG-5 (180-36402-8), SG-6 (180-36402-11), SW-1 Langan (180-36402-11), SW-2 Langan (180-36402-10).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples Sed-103 (180-36402-2), Sed-102 (180-36402-4), Sed-101 (180-36402-6) and DUP 090414 (180-36402-12) were analyzed for percent solids in accordance with EPA SW846 3550C. The samples were analyzed on 09/08/2014.

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Definitions/Glossary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Relative error ratio

Toxicity Equivalent Factor (Dioxin)

Toxicity Equivalent Quotient (Dioxin)

Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

TestAmerica Job ID: 180-36402-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
Н	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

RER

RPD

TEF

TEQ

RL

Glossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control

Certification Summary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36402-1

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date			
Pennsylvania	NELAP	3	02-00416	04-30-15			

Laboratory: TestAmerica Tallahassee

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E81005	06-30-15
Georgia	State Program	4		06-30-15
Louisiana	NELAP	6	30663	06-30-15
New Jersey	NELAP	2	FL012	06-30-15
Texas	NELAP	6	T104704459-11-2	03-31-15
USDA	Federal		P330-08-00158	08-05-14 *

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^{*} Certification renewal pending - certification considered valid.

Sample Summary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36402-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-36402-1	SW-5 Langan	Water	09/04/14 11:25	09/05/14 10:49
180-36402-2	Sed-103	Solid	09/04/14 12:20	09/05/14 10:49
180-36402-3	SW-4 Langan	Water	09/04/14 12:35	09/05/14 10:49
180-36402-4	Sed-102	Solid	09/04/14 13:10	09/05/14 10:49
180-36402-5	SW-3 Langan	Water	09/04/14 13:20	09/05/14 10:49
180-36402-6	Sed-101	Solid	09/04/14 14:00	09/05/14 10:49
180-36402-7	SG-7	Water	09/04/14 14:30	09/05/14 10:49
180-36402-8	SG-5	Water	09/04/14 15:15	09/05/14 10:49
180-36402-9	SG-6	Water	09/04/14 16:00	09/05/14 10:49
180-36402-10	SW-2 Langan	Water	09/04/14 16:15	09/05/14 10:49
180-36402-11	SW-1 Langan	Water	09/04/14 16:30	09/05/14 10:49
180-36402-12	DUP 090414	Solid	09/04/14 00:00	09/05/14 10:49

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Method Summary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36402-1

Method	Method Description	Protocol	Laboratory
8315A	Carbonyl Compounds (HPLC)	SW846	TAL TAL
Moisture	Percent Moisture	EPA	TAL TAL

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994

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Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-5 Langan

Lab Sample ID: 180-36402-1 Date Collected: 09/04/14 11:25

Matrix: Water

Date Received: 09/05/14 10:49

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	111423	09/05/14 10:15	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	111477	09/08/14 19:44	DNS	TAL TAL
	Instrum	ent ID: CHI C.I								

Client Sample ID: Sed-103 Lab Sample ID: 180-36402-2 **Matrix: Solid**

Date Collected: 09/04/14 12:20

Date Received: 09/05/14 10:49 Percent Solids: 81.9

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8315_S_Prep			20.1 g	4.0 mL	111503	09/10/14 07:30	DNS	TAL TAL
Total/NA	Analysis Instrum	8315A ent ID: CHLCJ		1	20.1 g	4.0 mL	111534	09/10/14 14:15	DNS	TAL TAL
Total/NA	Analysis Instrum	Moisture ent ID: AND EK610		1			111459	09/08/14 10:54	JPG	TAL TAL

Client Sample ID: SW-4 Langan

Lab Sample ID: 180-36402-3 Date Collected: 09/04/14 12:35 Matrix: Water

Date Received: 09/05/14 10:49

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	111423	09/05/14 10:15	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	111477	09/08/14 19:56	DNS	TAL TAL
	Instrum	ent ID: CHLCJ								

Client Sample ID: Sed-102 Lab Sample ID: 180-36402-4

Date Collected: 09/04/14 13:10 **Matrix: Solid** Date Received: 09/05/14 10:49 Percent Solids: 75.3

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8315_S_Prep	_		20.1 g	4.0 mL	111503	09/10/14 07:30	DNS	TAL TAL
Total/NA	Analysis	8315A		1	20.1 g	4.0 mL	111534	09/10/14 14:27	DNS	TAL TAL
	Instrum	ent ID: CHLCJ								
Total/NA	Analysis	Moisture		1			111459	09/08/14 10:54	JPG	TAL TAL
	Instrum	ent ID: AND EK610								

Lab Sample ID: 180-36402-5 Client Sample ID: SW-3 Langan

Date Collected: 09/04/14 13:20 Matrix: Water

Date Received: 09/05/14 10:49

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	111423	09/05/14 10:15	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	111477	09/08/14 20:07	DNS	TAL TAL
	Instrume	ent ID: CHLCJ								

TestAmerica Pittsburgh

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: Sed-101

Date Collected: 09/04/14 14:00

Date Received: 09/05/14 10:49

Lab Sample ID: 180-36402-6

Matrix: Solid Percent Solids: 82.1

Prep Type	Batch	Batch		Dil	Initial Amount	Final Amount	Batch Number	Prepared		
	Type	Method	Run	Factor				or Analyzed	Analyst	Lab
Total/NA	Prep	8315_S_Prep			20.0 g	4.0 mL	111503	09/10/14 07:30	DNS	TAL TAL
Total/NA	Analysis Instrume	8315A ent ID: CHLCJ		1	20.0 g	4.0 mL	111534	09/10/14 15:03	DNS	TAL TAL
Total/NA	Analysis Instrume	Moisture ent ID: AND EK610		1			111459	09/08/14 10:54	JPG	TAL TAL

Lab Sample ID: 180-36402-7

Client Sample ID: SG-7 Date Collected: 09/04/14 14:30 **Matrix: Water**

Date Received: 09/05/14 10:49

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	111423	09/05/14 10:15	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	111477	09/08/14 20:19	DNS	TAL TAL
	Instrume	ent ID: CHLCJ								

Client Sample ID: SG-5 Lab Sample ID: 180-36402-8

Date Received: 09/05/14 10:49

Date Collected: 09/04/14 15:15	Matrix: Water
Data Bassiyad: 09/05/44 40:49	

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	111423	09/05/14 10:15	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	111485	09/09/14 11:45	DNS	TAL TAL
	Instrume	ent ID: CHLCJ								

Client Sample ID: SG-6 Lab Sample ID: 180-36402-9 **Matrix: Water**

Date Collected: 09/04/14 16:00

Date Received: 09/05/14 10:49

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	111423	09/05/14 10:15	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	111485	09/09/14 11:57	DNS	TAL TAL
	Instrume	ent ID: CHLCJ								

Client Sample ID: SW-2 Langan Lab Sample ID: 180-36402-10

Date Collected: 09/04/14 16:15

Date Received: 09/05/14 10:49

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	111423	09/05/14 10:15	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	111485	09/09/14 12:09	DNS	TAL TAL
	Instrume	ent ID: CHLCJ								

TestAmerica Pittsburgh

Matrix: Water

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Date Collected: 09/04/14 16:30

Date Received: 09/05/14 10:49

Client Sample ID: SW-1 Langan

TestAmerica Job ID: 180-36402-1

Lab Sample ID: 180-36402-11

Matrix: Water

Batch Batch Dil Initial Final Batch Prepared Prep Type Туре Method Run Factor Amount Amount Number or Analyzed Analyst Lab 8315_W_Prep Total/NA Prep 100 mL 4.0 mL 111423 09/05/14 10:15 DNS TAL TAL Total/NA 8315A 100 mL 111485 09/09/14 12:21 DNS TAL TAL Analysis 4.0 mL

Instrument ID: CHLCJ

Client Sample ID: DUP 090414 Lab Sample ID: 180-36402-12

Date Collected: 09/04/14 00:00 **Matrix: Solid**

Date Received: 09/05/14 10:49 Percent Solids: 83.0

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8315_S_Prep			20.4 g	4.0 mL	111503	09/10/14 07:30	DNS	TAL TAL
Total/NA	Analysis	8315A		1	20.4 g	4.0 mL	111534	09/10/14 15:14	DNS	TAL TAL
	Instrum	ent ID: CHLCJ								
Total/NA	Analysis Instrum	Moisture ent ID: AND EK610		1			111459	09/08/14 10:54	JPG	TAL TAL

Laboratory References:

TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994

Analyst References:

Lab: TAL TAL

Batch Type: Prep

DNS = Daniel Smith

Batch Type: Analysis

DNS = Daniel Smith

JPG = Jeremy Gaskin

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-5 Langan

Date Collected: 09/04/14 11:25 Date Received: 09/05/14 10:49

Lab Sample ID: 180-36402-1

Matrix: Water

Method: 8315A - Carbonyl Compounds (HPLC) Analyte

Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac ND 50 ug/L 09/05/14 10:15 09/08/14 19:44 Formaldehyde 5.0

Client Sample ID: Sed-103 Lab Sample ID: 180-36402-2

Date Collected: 09/04/14 12:20 Matrix: Solid

Date Received: 09/05/14 10:49 Percent Solids: 81.9

Method: 8315A - Carbonyl Compounds (HPLC)

Analyte Result Qualifier RL MDL D Unit Prepared Analyzed Dil Fac ₩ 120 09/10/14 07:30 09/10/14 14:15 95 ug/Kg Formaldehyde 510

General Chemistry

Analyte Qualifier RL RL Result Unit D Prepared Analyzed Dil Fac 0.00010 0.00010 % 09/08/14 10:54 82 **Percent Solids**

Client Sample ID: SW-4 Langan Lab Sample ID: 180-36402-3

Date Collected: 09/04/14 12:35 Matrix: Water

Date Received: 09/05/14 10:49

Method: 8315A - Carbonyl Compounds (HPLC)

Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac Formaldehyde ND 50 5.0 ug/L 09/05/14 10:15 09/08/14 19:56

Client Sample ID: Sed-102 Lab Sample ID: 180-36402-4

Date Collected: 09/04/14 13:10

Matrix: Solid Date Received: 09/05/14 10:49 Percent Solids: 75.3

Method: 8315A - Carbonyl Compounds (HPLC)

Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac ₩ 130 09/10/14 07:30 Formaldehyde 100 ug/Kg 09/10/14 14:27 130

General Chemistry

Analyte Result Qualifier RL **RL** Unit D Prepared Analyzed Dil Fac **Percent Solids** 75 0.00010 0.00010 % 09/08/14 10:54

Client Sample ID: SW-3 Langan Lab Sample ID: 180-36402-5 Date Collected: 09/04/14 13:20 Matrix: Water

Date Received: 09/05/14 10:49

Method: 8315A - Carbonyl Compounds (HPLC)

Qualifier Analyte Result RL MDI Unit D Dil Fac Prepared Analyzed 09/05/14 10:15 09/08/14 20:07 Formaldehyde ND 50 5.0 ug/L

Client Sample ID: Sed-101 Lab Sample ID: 180-36402-6

Date Collected: 09/04/14 14:00

Matrix: Solid Date Received: 09/05/14 10:49 Percent Solids: 82.1

Method: 8315A - Carbonyl Compounds (HPLC)

Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac 120 09/10/14 07:30 09/10/14 15:03 Formaldehyde 390 95 ug/Kg

Lab Sample ID: 180-36402-6

TestAmerica Job ID: 180-36402-1

Matrix: Solid

Client Sample ID: Sed-101
Date Collected: 09/04/14 14:00

Date Received: 09/05/14 10:49

General Chemistry								
Analyte	Result Q	ualifier RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82	0.00010	0.00010	%			09/08/14 10:54	1

Client Sample ID: SG-7

Date Collected: 09/04/14 14:30

Lab Sample ID: 180-36402-7

Matrix: Water

Date Received: 09/05/14 10:49

Method: 8315A - Carbonyl Compounds (HPLC)									
	Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Formaldehyde	ND	50	5.0	ug/L		09/05/14 10:15	09/08/14 20:19	1

Client Sample ID: SG-5

Date Collected: 09/04/14 15:15

Lab Sample ID: 180-36402-8

Matrix: Water

Date Received: 09/05/14 10:49

Method: 8315A - Carbonyl Compou	ınds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	14	J H	50	5.0	ug/L		09/05/14 10:15	09/09/14 11:45	1

Client Sample ID: SG-6

Lab Sample ID: 180-36402-9

Date Collected: 09/04/14 16:00

Matrix: Water

Date Received: 09/05/14 10:49

Method: 8315A - Carbonyl Compounds (HPLC)										
	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Formaldehyde	ND	H	50	5.0	ug/L		09/05/14 10:15	09/09/14 11:57	1

Client Sample ID: SW-2 Langan

Date Collected: 09/04/14 16:15

Lab Sample ID: 180-36402-10

Matrix: Water

Date Collected: 09/04/14 16:15 Date Received: 09/05/14 10:49

Method: 8315A - Carbonyl Compounds (HPLC)										
	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Formaldehyde	5.5	J H	50	5.0	ug/L		09/05/14 10:15	09/09/14 12:09	1

Client Sample ID: SW-1 Langan Lab Sample ID: 180-36402-11

Date Collected: 09/04/14 16:30 Date Received: 09/05/14 10:49

Method: 8315A - Carbonyl Compo	unds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	7.0	JH	50	5.0	ug/L		09/05/14 10:15	09/09/14 12:21	1

Client Sample ID: DUP 090414

Date Collected: 09/04/14 00:00

Lab Sample ID: 180-36402-12

Matrix: Solid

Date Received: 09/05/14 10:49

Method: 8315A - Carbonyl Compo	unds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	690		120	92	ug/Kg	₽	09/10/14 07:30	09/10/14 15:14	1

Percent Solids: 83.0

Matrix: Water

Client Sample Results

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36402-1

Client Sample ID: DUP 090414 Lab Sample ID: 180-36402-12 Date Collected: 09/04/14 00:00

Matrix: Solid

Date Received: 09/05/14 10:49

General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83		0.00010	0.00010	%			09/08/14 10:54	1

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36402-1

Prep Batch: 111423

Method: 8315A - Carbonyl Compounds (HPLC)

Lab Sample ID: MB 640-111423/1-A Client Sample ID: Method Blank Prep Type: Total/NA

Matrix: Water

Analysis Batch: 111477

мв мв

Result Qualifier RL MDL Unit D Dil Fac Analyte Prepared Analyzed 50 09/05/14 10:15 Formaldehyde ND 5.0 ug/L 09/08/14 17:34

Lab Sample ID: LCS 640-111423/2-A Client Sample ID: Lab Control Sample **Matrix: Water** Prep Type: Total/NA Analysis Batch: 111477 Prep Batch: 111423

LCS LCS Spike Analyte Added Result Qualifier Unit %Rec Limits Formaldehyde 150 156 ug/L 104 73 - 133

Lab Sample ID: LCSD 640-111423/3-A Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA

Matrix: Water

Analysis Batch: 111477

Prep Batch: 111423 LCSD LCSD Spike %Rec. RPD Added Result Qualifier Unit D %Rec Limits RPD Limit 150 158 105 Formaldehyde ug/L 20

Lab Sample ID: MB 640-111503/1-A Client Sample ID: Method Blank

Matrix: Solid

Analysis Batch: 111534

MR MR

RL MDL Unit Analyte Result Qualifier Prepared Analyzed Dil Fac ND 100 09/10/14 07:30 09/10/14 13:40 Formaldehyde 78 ug/Kg

Lab Sample ID: LCS 640-111503/2-A Client Sample ID: Lab Control Sample

Matrix: Solid Prep Type: Total/NA Analysis Batch: 111534 **Prep Batch: 111503** Spike LCS LCS %Rec.

Added Analyte Result Qualifier Unit D Limits %Rec 746 Formaldehyde ug/Kg 98 70 - 141 731

Lab Sample ID: LCSD 640-111503/3-A Client Sample ID: Lab Control Sample Dup

Matrix: Solid

Analysis Batch: 111534 **Prep Batch: 111503** LCSD LCSD Spike RPD Result Qualifier Added Analyte Unit D %Rec Limits RPD Limit 750 Formaldehyde 742 ug/Kg 99 70 - 141

Lab Sample ID: 180-36402-4 MS

Matrix: Solid

Analysis Batch: 111534

MS MS Sample Sample Spike %Rec. Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits Formaldehyde 130 977 389 ug/Kg 26 18 - 153

Lab Sample ID: 180-36402-4 MSD

Matrix: Solid

Analysis Batch: 111534 Spike MSD MSD %Rec. Sample Sample Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD Ä 30 Formaldehyde 130 996 426 ug/Kg 9

TestAmerica Pittsburgh

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Prep Type: Total/NA

Prep Batch: 111503

Prep Type: Total/NA

QC Sample Results

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36402-1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-36402-1

HPLC/IC

Prep Batch: 111423

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36402-1	SW-5 Langan	Total/NA	Water	8315_W_Prep	
180-36402-3	SW-4 Langan	Total/NA	Water	8315_W_Prep	
180-36402-5	SW-3 Langan	Total/NA	Water	8315_W_Prep	
180-36402-7	SG-7	Total/NA	Water	8315_W_Prep	
180-36402-8	SG-5	Total/NA	Water	8315_W_Prep	
180-36402-9	SG-6	Total/NA	Water	8315_W_Prep	
180-36402-10	SW-2 Langan	Total/NA	Water	8315_W_Prep	
180-36402-11	SW-1 Langan	Total/NA	Water	8315_W_Prep	
LCS 640-111423/2-A	Lab Control Sample	Total/NA	Water	8315_W_Prep	
LCSD 640-111423/3-A	Lab Control Sample Dup	Total/NA	Water	8315_W_Prep	
MB 640-111423/1-A	Method Blank	Total/NA	Water	8315_W_Prep	

Analysis Batch: 111477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36402-1	SW-5 Langan	Total/NA	Water	8315A	111423
180-36402-3	SW-4 Langan	Total/NA	Water	8315A	111423
180-36402-5	SW-3 Langan	Total/NA	Water	8315A	111423
180-36402-7	SG-7	Total/NA	Water	8315A	111423
LCS 640-111423/2-A	Lab Control Sample	Total/NA	Water	8315A	111423
LCSD 640-111423/3-A	Lab Control Sample Dup	Total/NA	Water	8315A	111423
MB 640-111423/1-A	Method Blank	Total/NA	Water	8315A	111423

Analysis Batch: 111485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36402-8	SG-5	Total/NA	Water	8315A	111423
180-36402-9	SG-6	Total/NA	Water	8315A	111423
180-36402-10	SW-2 Langan	Total/NA	Water	8315A	111423
180-36402-11	SW-1 Langan	Total/NA	Water	8315A	111423

Prep Batch: 111503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36402-2	Sed-103	Total/NA	Solid	8315_S_Prep	-
180-36402-4	Sed-102	Total/NA	Solid	8315_S_Prep	
180-36402-4 MS	Sed-102	Total/NA	Solid	8315_S_Prep	
180-36402-4 MSD	Sed-102	Total/NA	Solid	8315_S_Prep	
180-36402-6	Sed-101	Total/NA	Solid	8315_S_Prep	
180-36402-12	DUP 090414	Total/NA	Solid	8315_S_Prep	
LCS 640-111503/2-A	Lab Control Sample	Total/NA	Solid	8315_S_Prep	
LCSD 640-111503/3-A	Lab Control Sample Dup	Total/NA	Solid	8315_S_Prep	
MB 640-111503/1-A	Method Blank	Total/NA	Solid	8315_S_Prep	

Analysis Batch: 111534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-36402-2	Sed-103	Total/NA	Solid	8315A	111503
180-36402-4	Sed-102	Total/NA	Solid	8315A	111503
180-36402-4 MS	Sed-102	Total/NA	Solid	8315A	111503
180-36402-4 MSD	Sed-102	Total/NA	Solid	8315A	111503
180-36402-6	Sed-101	Total/NA	Solid	8315A	111503
180-36402-12	DUP 090414	Total/NA	Solid	8315A	111503
LCS 640-111503/2-A	Lab Control Sample	Total/NA	Solid	8315A	111503
LCSD 640-111503/3-A	Lab Control Sample Dup	Total/NA	Solid	8315A	111503

TestAmerica Pittsburgh

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QC Association Summary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-36402-1

HPLC/IC (Continued)

Analysis Batch: 111534 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 640-111503/1-A	Method Blank	Total/NA	Solid	8315A	111503

General Chemistry

Analysis Batch: 111459

Lab Samp	ole ID Client Sa	ample ID Prep T	ype Matrix	K Method	Prep Batch
180-36402	2-2 Sed-103	Total/N	NA Solid	Moisture	
180-36402	2-4 Sed-102	Total/N	NA Solid	Moisture	
180-36402	2-6 Sed-101	Total/N	NA Solid	Moisture	
180-36402	2-12 DUP 090	0414 Total/N	NA Solid	Moisture	

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Chain of Custody Record

THE LEADER IN ENVIRONMENTAL TESTING TestAmerica Laboratories, Inc.

Prosecution (Constitution of Constitution of C	Date/Time:	Company:	Received in Laboratory by:	Date/Time:	Company:	Relinquished by:
	Date/Time:	Company:	Received by:	Date/Time: 🔪 -	Company:	Relinquished by
090	Date/Time:	Company:	Received by:	Date/Time: GH,JH/JKB	Company: CADIS	Relinquished by:
	Therm ID No.:	Corr'd:	Cooler Temp=(°C): Obs'd:		Custody Seal No.:	Custody Seals Intact: Yes No
		277				Special Instructions/QC Requirements & Comments:
:	rMonths	by Lab Archive for	Return to Client Disposal by Lab	Unknown	Poison B	☐ Non-Hazard ☐ Flammable ☐ Skin Irritant
	(es for the sample in the	ase List any EPA Waste Coc	Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
onth)	ned longer than 1 mo	fee may be assessed if samples are retained longer than 1 month)	Sample Disposal (A fee may be asse); 5=NaOH; 6= Other	Preservation Used: 1= lce, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other Possible Hazard Identification:
			2	1) So 1 M	< 1	DUROPOSIU
			X	N T	1630 6	Sw-1 Langan
			X		1615 6	SW-2 Langan
			マ 次	Y WY N	1600	86-6
			×	N W7 - Z	215	SG-5
			X	7 67 0	M30 (SG-7
			Z X	So	1400	Sed-101
			X	N N N	1320 6	SW-3 Langan
			X	30 3 N	1310	Sed-10al
			XX.	97 WT - V	1235	SW-4 Langan
			X	C SO IN	1220	Sed -103 0
			Σ: X	4) W-1 - Z	SELL MINES	SW-S Langan
Sample Specific Notes:	Sample Sp		Perform 831S	Watrix Cont.	Sample Sample (C-	Sample Identification
			MS	Sample	Sa	
	Job / SDG No.:		For	ple ('	2 days	Site: Lefrolia, PA
	Lab Sampling:		(Y/	Y / N)	2 weeks	Project Name: In specify Petrolic
	Walk-in Client:		N)		TAT if different from Below	Phone: 724-743-6180
S.	For Lab Use Only:		urde	~ 1		City/State/Zip: Mackery (1)
COCs	of	ier: Flatox	Lab Contact: PENCO BENDE Carr	Turnaround Time	Analysis Turna	Address: OOH I MIGGO DA LAND
	COC, No:		Site Contact Jot Laso Date:	CK Hamsh Si	Project Manager: // A	Company Name: All Change
THE LEADER IN ENVIRONMENTAL TESTING TestAmerica Laboratories, Inc. TAL-8210 (0713)	THE LEADER IN ENV		RCRA Other:	m: □ DW □ NPDES	Regulatory Program:	Pittsburgh, PA 15238 Phone: 412.963.7058 Fax: 412.963.2470

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Login Number: 36402 List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Bortot, Veronica

ordator. Bortot, voromod		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

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Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Login Number: 36402 List Source: TestAmerica Tallahassee List Number: 2 List Creation: 09/05/14 11:44 AM

Creator: Gaskin, Jeremy P

N/A

Residual Chlorine Checked.



THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pittsburgh 301 Alpha Drive RIDC Park Pittsburgh, PA 15238 Tel: (412)963-7058

TestAmerica Job ID: 180-39575-1

Client Project/Site: INDSPEC, Petrolia PA

For:

ARCADIS U.S. Inc 6041 Wallace Road Extension Suite 300 Wexford, Pennsylvania 15090

Attn: Mark Hanish

Authorized for release by: 12/30/2014 5:14:35 PM

ronce Bortot

Veronica Bortot, Senior Project Manager (412)963-2435

veronica.bortot@testamericainc.com

Review your project

results through
Total Access

Have a Question?



Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: ARCADIS U.S. Inc Project/Site: INDSPEC, Petrolia PA TestAmerica Job ID: 180-39575-1

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Case Narrative

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

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Job ID: 180-39575-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative 180-39575-1

Comments

No additional comments.

Receipt

The samples were received on 12/5/2014 6:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 1.1° C, 1.5° C, 1.6° C, 3.6° C, 3.7° C and 4.2° C.

GC/MS VOA

Method(s) 8260B: The following analyte(s) recovered outside control limits for the LCS associated with batch 127750: Tran3-1,3-Dichloropropene. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Anions

Method(s) 300.0: The following samples were diluted due to the nature of the sample matrix: SED-102 (180-39575-4), SED-102 (180-39575-4 MS), SED-102 (180-39575-4 MSD). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

LCMS

Method(s) In-House: The following sample(s) was diluted due to the nature of the sample matrix: (180-39575-2), (180-39575-2 MS), (180-39575-4), (180-39575-4 MS), (180-39575-4 MSD), (180-39575-6), (180-39575-6 MS), (180-39575-7), (180-39575-7 MS), DUP120314 (180-39575-7), SED-101 (180-39575-6), SED-102 (180-39575-4), SED-102 (180-39575-4 MS), SED-103 (180-39575-2). Elevated reporting limits (RLs) are provided.

Method(s) In-House: This method requires the acquisition of an initial calibration curve followed by a second analysis of each ICAL point embedded within the analytical sequence. Unfortunately, the "embedded" ICAL was adversely affected by the non-target matrix for all target compounds except m-BDSA. The responses for the other 4 analytes climbed throughout the run, resulting in an invalid ICAL. Since the initial ICAL curve produced a compliant calibration, and valid ICV, LLCS and LCS, the analyst decided to convert the embedded ICAL points into CCVs to display the changes seen during the sequence. This decision was made based on the poor recoveries of the matrix spikes in the samples, which confirmed our previous results in September. Rerunning the sequence could not have occurred until after the sample holding times had expired, and would have confirmed the results of the original run or shown the recoveries to be lower had the responses not risen. Each of the CCVs displays high recoveries for p-PSA, BSA, resorcinol and THD.

Method(s) In-House: This CCVs displays high recoveries for p-PSA, BSA, resorcinol and THD, which is consistent with the results found after running samples in Batch 81860.

Method(s) In-House: CCV fails high for THD (22.6%-limit 20%).

Method(s) In-House: Low level laboratory control sample (LLCS) for batch 81831 recovered low for BSA. The continuing calibration verification (CCV) immediately following the LLCS recovered 16% low for BSA, signifying a potential trend in the response of this compound at this point of the run.

(LLCS 200-81831/2-A)

Method(s) In-House: The laboratory control sample (LCS) for batch 81831 recovered outside control limits for THD. The continuing

TestAmerica Pittsburgh 12/30/2014

Case Narrative

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Job ID: 180-39575-1 (Continued)

Laboratory: TestAmerica Pittsburgh (Continued)

calibration verification (CCV) immediately following the LCS and all remaining CCVs associated with this batch showed elevated recovery and exceeded continuing calibration limits. (LCS 200-81831/3-A)

Method(s) In-House: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following samples associated with batch 81831 were outside control limits: (180-39575-2 MS), (180-39575-4 MSD), (180-39575-6 MS), (180-39575-7 MSD), (180-39575-7 MSD), (180-39575-1 MSD), (1

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Definitions/Glossary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
В	Compound was found in the blank and sample.
*	LCS or LCSD exceeds the control limits
F1	MS and/or MSD Recovery exceeds the control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
HPLC/IC	

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery exceeds the control limits
F2	MS/MSD RPD exceeds control limits
В	Compound was found in the blank and sample.
LCMS	

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery exceeds the control limits
*	LCS or LCSD exceeds the control limits
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F2	MS/MSD RPD exceeds control limits
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

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Certification Summary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Laboratory: TestAmerica Pittsburgh

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program		EPA Region	Certification ID	Expiration Date
Pennsylvania	NELAP		3	02-00416	04-30-15
Analysis Method	Prep Method	Matrix	Analyt	te	

Laboratory: TestAmerica Burlington

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Pennsylvania	NELAP	3	68-00489	04-30-15

Laboratory: TestAmerica Tallahassee

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date	
Florida	NELAP	4	E81005	06-30-15	
Georgia	State Program	4		06-30-15	
Louisiana	NELAP	6	30663	06-30-15	
New Jersey	NELAP	2	FL012	06-30-15	
Texas	NELAP	6	T104704459-11-2	03-31-15	
USDA	Federal		P330-08-00158	10-14-17	

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Sample Summary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-39575-1	SW-5_LANGAN	Water	12/03/14 10:45	12/05/14 18:40
180-39575-2	SED-103	Solid	12/03/14 11:00	12/05/14 18:40
180-39575-3	SW-4_LANGAN	Water	12/03/14 11:10	12/05/14 18:40
180-39575-4	SED-102	Solid	12/03/14 11:20	12/05/14 18:40
180-39575-5	SW-3_LANGAN	Water	12/03/14 11:40	12/05/14 18:40
180-39575-6	SED-101	Solid	12/03/14 12:00	12/05/14 18:40
180-39575-7	DUP120314	Solid	12/03/14 00:00	12/05/14 18:40
180-39575-8	SG-7	Water	12/03/14 12:20	12/05/14 18:40
180-39575-9	SG-5	Water	12/03/14 12:35	12/05/14 18:40
180-39575-10	SG-4	Water	12/04/14 09:55	12/05/14 18:40
180-39575-11	SG-3	Water	12/04/14 10:20	12/05/14 18:40
180-39575-12	DUP120414	Water	12/04/14 00:00	12/05/14 18:40
180-39575-13	SG-8	Water	12/04/14 10:45	12/05/14 18:40
180-39575-14	SW-1	Water	12/04/14 10:55	12/05/14 18:40
180-39575-15	SG-2	Water	12/04/14 11:15	12/05/14 18:40
180-39575-16	SH-1	Water	12/04/14 11:30	12/05/14 18:40
180-39575-17	SG-1	Water	12/04/14 11:40	12/05/14 18:40
180-39575-18	SG-6	Water	12/04/14 13:00	12/05/14 18:40
180-39575-19	SW-2_LANGAN	Water	12/04/14 13:10	12/05/14 18:40
180-39575-20	SW-1_LANGAN	Water	12/04/14 13:20	12/05/14 18:40
180-39575-21	FB120414	Water	12/04/14 14:40	12/05/14 18:40
180-39575-22	TRIP BLANK	Water	12/04/14 00:00	12/05/14 18:40

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Method Summary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT
8260C	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL PIT
300.0	Anions, Ion Chromatography	MCAWW	TAL PIT
8315A	Carbonyl Compounds (HPLC)	SW846	TAL TAL
In-House	Sulfonic Acids by LCMS/MS	TAL-BUR	TAL BUR
2540G	SM 2540G	SM22	TAL PIT

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions. SM22 = SM22

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-BUR = TestAmerica Laboratories, Burlington, Facility Standard Operating Procedure.

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990 TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994

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1:

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-5_LANGAN

Date Collected: 12/03/14 10:45 Date Received: 12/05/14 18:40

Lab Sample ID: 180-39575-1

Matrix: Water

	Batch	Batch Batch Dil Initial	Initial	Final	Batch	Prepared				
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrum	8260C ent ID: CHHP5		1	5 mL	5 mL	128468	12/16/14 12:44	DLF	TAL PIT
Total/NA	Prep	3520C			270 mL	0.25 mL	127659	12/09/14 08:31	BJT	TAL PIT
Total/NA	Analysis Instrum	8270C LL ent ID: CH731		1	270 mL	0.25 mL	127827	12/10/14 12:21	VVP	TAL PIT
Total/NA	Analysis Instrum	300.0 ent ID: CHICS2100B		1	1 mL		128954	12/20/14 20:20	MJH	TAL PIT
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis Instrum	8315A ent ID: CHLCJ		1	100 mL	4.0 mL	113556	12/08/14 13:17	RDD	TAL TAL
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR
Total/NA	Analysis Instrum	In-House ent ID: LC3062B		10	2.5 mL	2.5 mL	81886	12/10/14 13:27	BWC	TAL BUR

Lab Sample ID: 180-39575-2

Matrix: Solid Percent Solids: 85.7

Client Sample ID: SED-103 Date Collected: 12/03/14 11:00 Date Received: 12/05/14 18:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B		-	5.0002 g	5 mL	127772	12/10/14 05:05	KLG	TAL PIT
Total/NA	Analysis	8260B		1	5.0002 g	5 mL	127750	12/10/14 09:22	KLG	TAL PIT
	Instrum	ent ID: CHHP3								
Soluble	Leach	DI Leach			010.2608 g	100 mL	129253	12/23/14 13:00	CMR	TAL PIT
Soluble	Analysis	300.0		1	1 mL		129332	12/24/14 11:28	CMR	TAL PIT
	Instrum	ent ID: CHIC25								
Total/NA	Prep	8315_S_Prep			20.2 g	4.0 mL	113540	12/08/14 07:45	DNS	TAL TAL
Total/NA	Analysis	8315A		1	20.2 g	4.0 mL	113605	12/10/14 09:37	DNS	TAL TAL
	Instrum	ent ID: CHLCJ								
Total/NA	Prep	In House			10.12 g	20 mL	81831	12/08/14 15:50	BWC	TAL BUR
Total/NA	Analysis	In-House		40	10.12 g	20 mL	81860	12/09/14 20:23	BWC	TAL BUR
	Instrum	ent ID: LC3062B								
Total/NA	Prep	In House			10.12 g	20 mL	81831	12/08/14 15:50	BWC	TAL BUR
Total/NA	Analysis	In-House		2	10.12 g	20 mL	81860	12/09/14 23:29	BWC	TAL BUR
	Instrum	ent ID: LC3062B								
Total/NA	Analysis	2540G		1			127602	12/08/14 15:03	AB1	TAL PIT
	Instrum	ent ID: NOEQUIP								

Client Sample ID: SW-4_LANGAN

Instrument ID: CHHP5

Date Collected: 12/03/14 11:10

Date Received: 12/05/14 18:40

Date Hoodivour II	00/11/10/1	<u> </u>								
_										
	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	82600		1	5 ml	5 ml	128/68	12/16/14 15:56	DLE	TAI DIT

TestAmerica Pittsburgh

Lab Sample ID: 180-39575-3

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12/30/2014

Matrix: Water

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-4_LANGAN

Date Collected: 12/03/14 11:10 Date Received: 12/05/14 18:40 Lab Sample ID: 180-39575-3

Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3520C		-	270 mL	0.25 mL	127659	12/09/14 08:31	BJT	TAL PIT
Total/NA	Analysis Instrume	8270C LL ent ID: CH731		1	270 mL	0.25 mL	127827	12/10/14 12:50	VVP	TAL PIT
Total/NA	Analysis	300.0 ent ID: CHICS2100B		1	1 mL		128954	12/20/14 20:55	MJH	TAL PIT
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis Instrume	8315A ent ID: CHLCJ		1	100 mL	4.0 mL	113556	12/08/14 13:29	RDD	TAL TAL
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR
Total/NA	Analysis Instrume	In-House ent ID: LC3062B		10	2.5 mL	2.5 mL	81886	12/10/14 13:59	BWC	TAL BUR

Client Sample ID: SED-102 Lab Sample ID: 180-39575-4

Date Collected: 12/03/14 11:20

Date Received: 12/05/14 18:40

Matrix: Solid

Percent Solids: 73.3

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.0002 g	5 mL	127772	12/10/14 05:05	KLG	TAL PIT
Total/NA	Analysis	8260B		1	5.0002 g	5 mL	127750	12/10/14 07:07	KLG	TAL PIT
	Instrume	ent ID: CHHP3								
Soluble	Leach	DI Leach			010.1914 g	100 mL	129253	12/23/14 13:00	CMR	TAL PIT
Soluble	Analysis	300.0		10	1 mL		129332	12/24/14 11:43	CMR	TAL PIT
	Instrume	ent ID: CHIC25								
Total/NA	Prep	8315_S_Prep			20.2 g	4.0 mL	113540	12/08/14 07:45	DNS	TAL TAL
Total/NA	Analysis	8315A		1	20.2 g	4.0 mL	113605	12/10/14 09:49	DNS	TAL TAL
	Instrume	ent ID: CHLCJ								
Total/NA	Prep	In House			10.01 g	20 mL	81831	12/08/14 15:50	BWC	TAL BUR
Total/NA	Analysis	In-House		40	10.01 g	20 mL	81860	12/09/14 20:56	BWC	TAL BUR
	Instrume	ent ID: LC3062B								
Total/NA	Prep	In House			10.01 g	20 mL	81831	12/08/14 15:50	BWC	TAL BUR
Total/NA	Analysis	In-House		2	10.01 g	20 mL	81860	12/09/14 23:51	BWC	TAL BUR
	Instrume	ent ID: LC3062B								
Total/NA	Analysis	2540G		1			127602	12/08/14 15:03	AB1	TAL PIT
	Instrume	ent ID: NOEQUIP								

Client Sample ID: SW-3_LANGAN Lab Sample ID: 180-39575-5

Date Collected: 12/03/14 11:40 **Matrix: Water** Date Received: 12/05/14 18:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	128468	12/16/14 16:21	DLF	TAL PIT
	Instrume	ent ID: CHHP5								
Total/NA	Prep	3520C			270 mL	0.25 mL	127659	12/09/14 08:31	BJT	TAL PIT

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-3_LANGAN

Date Collected: 12/03/14 11:40 Date Received: 12/05/14 18:40

Lab Sample ID: 180-39575-5

Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8270C LL		1	270 mL	0.25 mL	127827	12/10/14 13:18	VVP	TAL PIT
	Instrum	ent ID: CH731								
Total/NA	Analysis	300.0		1	1 mL		128954	12/20/14 22:39	MJH	TAL PIT
	Instrum	ent ID: CHICS2100B								
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	113556	12/08/14 13:41	RDD	TAL TAL
	Instrum	ent ID: CHLCJ								
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR
Total/NA	Analysis	In-House		10	2.5 mL	2.5 mL	81886	12/10/14 14:21	BWC	TAL BUR
	Instrum	ent ID: LC3062B								

Client Sample ID: SED-101

Date Collected: 12/03/14 12:00 Date Received: 12/05/14 18:40

Lab Sample ID: 180-39575-6 Matrix: Solid

Percent Solids: 83.8

ate Received	: 12/05/14 18:4	10							Percent	Solids: 83.
-	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.0008 g	5 mL	127772	12/10/14 05:05	KLG	TAL PIT
Total/NA	Analysis Instrum	8260B ent ID: CHHP3		1	5.0008 g	5 mL	127750	12/10/14 09:44	KLG	TAL PIT
Soluble	Leach	DI Leach			010.0373 g	100 mL	129253	12/23/14 13:00	CMR	TAL PIT
Soluble	Analysis Instrum	300.0 ent ID: CHIC2100A		1	1 mL		129476	12/30/14 02:22	MJH	TAL PIT
Total/NA	Prep	8315_S_Prep			20.2 g	4.0 mL	113540	12/08/14 07:45	DNS	TAL TAL
Total/NA	Analysis Instrum	8315A ent ID: CHLCJ		1	20.2 g	4.0 mL	113605	12/10/14 10:24	DNS	TAL TAL
Total/NA	Prep	In House			10.11 g	20 mL	81831	12/08/14 15:50	BWC	TAL BUR
Total/NA	Analysis Instrum	In-House ent ID: LC3062B		100	10.11 g	20 mL	81860	12/09/14 21:51	BWC	TAL BUR
Total/NA	Prep	In House			10.11 g	20 mL	81831	12/08/14 15:50	BWC	TAL BUR
Total/NA	Analysis Instrum	In-House ent ID: LC3062B		40	10.11 g	20 mL	81860	12/09/14 22:01	BWC	TAL BUR
Total/NA	Analysis Instrum	2540G ent ID: NOEQUIP		1			127602	12/08/14 15:03	AB1	TAL PIT

Client Sample ID: DUP120314

Date Collected: 12/03/14 00:00

Date Received: 12/05/14 18:40

Lab Sample ID: 180-39575-7

Matrix: Solid

Percent Solids: 79.5

Prep Type Total/NA Total/NA	Batch Type Prep Analysis	Batch Method 5030B 8260B	Run	Factor	Initial Amount 5.0009 g 5.0009 g	Final Amount 5 mL 5 mL	Batch Number 127772 127750	Prepared or Analyzed 12/10/14 05:05 12/10/14 10:06	Analyst KLG KLG	Lab TAL PIT TAL PIT
Soluble	Instrum Leach	ent ID: CHHP3 DI Leach			010.1405 g	100 mL	129253	12/23/14 13:00	CMR	TAL PIT

TestAmerica Pittsburgh

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: DUP120314

Date Collected: 12/03/14 00:00 Date Received: 12/05/14 18:40 Lab Sample ID: 180-39575-7

Matrix: Solid

		watrix. Solid	
	Percent	Solids: 79.5	
Prepared			
or Analyzed	Analyst	Lab	

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Soluble	Analysis	300.0		1	1 mL		129476	12/30/14 02:38	MJH	TAL PIT
	Instrum	ent ID: CHIC2100A								
Total/NA	Prep	8315_S_Prep			20.0 g	4.0 mL	113540	12/08/14 07:45	DNS	TAL TAL
Total/NA	Analysis	8315A		1	20.0 g	4.0 mL	113605	12/10/14 10:36	DNS	TAL TAL
	Instrum	ent ID: CHLCJ								
Total/NA	Prep	In House			10.15 g	20 mL	81831	12/08/14 15:50	BWC	TAL BUR
Total/NA	Analysis	In-House		100	10.15 g	20 mL	81860	12/09/14 22:34	BWC	TAL BUR
	Instrum	ent ID: LC3062B								
Total/NA	Prep	In House			10.15 g	20 mL	81831	12/08/14 15:50	BWC	TAL BUR
Total/NA	Analysis	In-House		40	10.15 g	20 mL	81860	12/09/14 22:56	BWC	TAL BUR
	Instrum	ent ID: LC3062B								
Total/NA	Analysis	2540G		1			127602	12/08/14 15:03	AB1	TAL PIT
	Instrum	ent ID: NOEQUIP								

Client Sample ID: SG-7 Lab Sample ID: 180-39575-8

Matrix: Water

Date Collected: 12/03/14 12:20 Date Received: 12/05/14 18:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrume	8260C ent ID: CHHP5		1	5 mL	5 mL	128468	12/16/14 16:45	DLF	TAL PIT
Total/NA	Prep	3520C			270 mL	0.25 mL	127659	12/09/14 08:31	BJT	TAL PIT
Total/NA	Analysis Instrume	8270C LL ent ID: CH731		1	270 mL	0.25 mL	127827	12/10/14 13:46	VVP	TAL PIT
Total/NA	Analysis Instrume	300.0 ent ID: CHICS2100B		1	1 mL		129078	12/22/14 14:47	MJH	TAL PIT
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis Instrume	8315A ent ID: CHLCJ		1	100 mL	4.0 mL	113556	12/08/14 13:53	RDD	TAL TAL
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR
Total/NA	Analysis Instrume	In-House ent ID: LC3062B		10	2.5 mL	2.5 mL	81886	12/10/14 14:43	BWC	TAL BUR

Client Sample ID: SG-5

Date Collected: 12/03/14 12:35

Lab Sample ID: 180-39575-9

Matrix: Water

Date Received: 12/05/14 18:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	128468	12/16/14 17:09	DLF	TAL PIT
	Instrume	ent ID: CHHP5								
Total/NA	Prep	3520C			270 mL	0.25 mL	127659	12/09/14 08:31	BJT	TAL PIT
Total/NA	Analysis	8270C LL		1	270 mL	0.25 mL	127827	12/10/14 14:14	VVP	TAL PIT
	Instrume	ent ID: CH731								

TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Lab Sample ID: 180-39575-9

Matrix: Water

Date Collected: 12/03/14 12:35 Date Received: 12/05/14 18:40

Client Sample ID: SG-5

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	1 mL		128954	12/20/14 23:48	MJH	TAL PIT
	Instrume	ent ID: CHICS2100B								
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	113556	12/08/14 14:04	RDD	TAL TAL
	Instrume	ent ID: CHLCJ								
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR
Total/NA	Analysis	In-House		10	2.5 mL	2.5 mL	81886	12/10/14 15:15	BWC	TAL BUR
	Instrume	ent ID: LC3062B								

Client Sample ID: SG-4 Lab Sample ID: 180-39575-10

Date Collected: 12/04/14 09:55 Matrix: Water

Date Received: 12/05/14 18:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrume	8260C ent ID: CHHP6		1	5 mL	5 mL	128326	12/15/14 13:43	DLF	TAL PIT
Total/NA	Prep	3520C			270 mL	0.25 mL	127798	12/10/14 08:24	BJT	TAL PIT
Total/NA	Analysis Instrume	8270C LL ent ID: CH731		1	270 mL	0.25 mL	128007	12/11/14 17:01	VVP	TAL PIT
Total/NA	Analysis Instrume	300.0 ent ID: CHICS2100B		1	1 mL		129078	12/22/14 13:28	MJH	TAL PIT
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis Instrume	8315A ent ID: CHLCJ		1	100 mL	4.0 mL	113556	12/08/14 14:16	RDD	TAL TAL
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR
Total/NA	Analysis Instrume	In-House ent ID: LC3062B		10	2.5 mL	2.5 mL	81886	12/10/14 15:38	BWC	TAL BUR

Client Sample ID: SG-3 Lab Sample ID: 180-39575-11

Date Collected: 12/04/14 10:20 Date Received: 12/05/14 18:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrume	8260C ent ID: CHHP5		1	5 mL	5 mL	128468	12/16/14 17:33	DLF	TAL PIT
Total/NA	Prep	3520C			270 mL	0.25 mL	127798	12/10/14 08:24	BJT	TAL PIT
Total/NA	Analysis Instrume	8270C LL ent ID: CH731		1	270 mL	0.25 mL	128007	12/11/14 18:25	VVP	TAL PIT
Total/NA	Analysis Instrume	300.0 ent ID: CHICS2100B		1	1 mL		128954	12/21/14 00:23	MJH	TAL PIT
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis Instrume	8315A ent ID: CHLCJ		1	100 mL	4.0 mL	113556	12/08/14 14:52	RDD	TAL TAL
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR

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3

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11

12

Matrix: Water

Client: ARCADIS U.S. Inc

Client Sample ID: SG-3

Total/NA

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Lab Sample ID: 180-39575-11

BWC

12/10/14 16:21

Matrix: Water

TAL BUR

Matrix: Water

Date Collected: 12/04/14 10:20 Date Received: 12/05/14 18:40

Batch Batch Dil Initial Final Batch Prepared Prep Type Туре Method Run Factor Amount Amount Number or Analyzed Analyst Lab

10

In-House Instrument ID: LC3062B

Analysis

Client Sample ID: DUP120414 Lab Sample ID: 180-39575-12

2.5 mL

2.5 mL

81886

Date Collected: 12/04/14 00:00 Matrix: Water

Date Received: 12/05/14 18:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	128468	12/16/14 17:57	DLF	TAL PIT
	Instrume	ent ID: CHHP5								
Total/NA	Prep	3520C			270 mL	0.25 mL	127798	12/10/14 08:24	BJT	TAL PIT
Total/NA	Analysis	8270C LL		1	270 mL	0.25 mL	128007	12/11/14 18:49	VVP	TAL PIT
	Instrume	ent ID: CH731								
Total/NA	Analysis	300.0		1	1 mL		128954	12/21/14 00:57	MJH	TAL PIT
	Instrume	ent ID: CHICS2100B								
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	113556	12/08/14 15:15	RDD	TAL TAL
	Instrume	ent ID: CHLCJ								
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUF
Total/NA	Analysis	In-House		10	2.5 mL	2.5 mL	81886	12/10/14 16:43	BWC	TAL BUF
	Instrume	ent ID: LC3062B								

Client Sample ID: SG-8 Lab Sample ID: 180-39575-13

Date Collected: 12/04/14 10:45

Date Received: 12/05/14 18:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrume	8260C ent ID: CHHP5		1	5 mL	5 mL	128468	12/16/14 18:45	DLF	TAL PIT
Total/NA	Prep	3520C			270 mL	0.25 mL	127798	12/10/14 08:24	BJT	TAL PIT
Total/NA	Analysis Instrume	8270C LL ent ID: CH731		1	270 mL	0.25 mL	128007	12/11/14 19:13	VVP	TAL PIT
Total/NA	Analysis Instrume	300.0 ent ID: CHICS2100B		1	1 mL		128954	12/21/14 01:32	MJH	TAL PIT
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis Instrume	8315A ent ID: CHLCJ		1	100 mL	4.0 mL	113556	12/08/14 15:27	RDD	TAL TAL
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR
Total/NA	Analysis Instrume	In-House ent ID: LC3062B		10	2.5 mL	2.5 mL	81886	12/10/14 17:17	BWC	TAL BUR

TestAmerica Pittsburgh

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Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-1

Date Collected: 12/04/14 10:55 Date Received: 12/05/14 18:40 Lab Sample ID: 180-39575-14

Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	128468	12/16/14 19:09	DLF	TAL PIT
	Instrume	ent ID: CHHP5								
Total/NA	Prep	3520C			270 mL	0.25 mL	127798	12/10/14 08:24	BJT	TAL PIT
Total/NA	Analysis	8270C LL		1	270 mL	0.25 mL	128007	12/11/14 19:37	VVP	TAL PIT
	Instrume	ent ID: CH731								
Total/NA	Analysis	300.0		1	1 mL		128954	12/21/14 02:07	MJH	TAL PIT
	Instrume	ent ID: CHICS2100B								
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	113556	12/08/14 15:39	RDD	TAL TAL
	Instrume	ent ID: CHLCJ								
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR
Total/NA	Analysis	In-House		10	2.5 mL	2.5 mL	81886	12/10/14 17:38	BWC	TAL BUR
	Instrume	ent ID: LC3062B								

Client Sample ID: SG-2 Lab Sample ID: 180-39575-15

Date Collected: 12/04/14 11:15
Date Received: 12/05/14 18:40
Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	128468	12/16/14 19:34	DLF	TAL PIT
	Instrume	ent ID: CHHP5								
Total/NA	Prep	3520C			270 mL	0.25 mL	127798	12/10/14 08:26	BJT	TAL PIT
Total/NA	Analysis	8270C LL		1	270 mL	0.25 mL	128007	12/11/14 20:01	VVP	TAL PIT
	Instrume	ent ID: CH731								
Total/NA	Analysis	300.0		1	1 mL		129078	12/22/14 15:05	MJH	TAL PIT
	Instrume	ent ID: CHICS2100B								
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	113556	12/08/14 15:51	RDD	TAL TAL
	Instrume	ent ID: CHLCJ								
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR
Total/NA	Analysis	In-House		10	2.5 mL	2.5 mL	81886	12/10/14 18:00	BWC	TAL BUR
	Instrume	ent ID: LC3062B								

Client Sample ID: SH-1

Date Collected: 12/04/14 11:30

Lab Sample ID: 180-39575-16

Matrix: Water

Date Received: 12/05/14 18:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	128456	12/16/14 15:48	DLF	TAL PIT
	Instrume	ent ID: CHHP6								
Total/NA	Prep	3520C			270 mL	0.25 mL	127798	12/10/14 08:26	BJT	TAL PIT
Total/NA	Analysis	8270C LL		1	270 mL	0.25 mL	128007	12/11/14 20:25	VVP	TAL PIT
	Instrume	ent ID: CH731								

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Client Sample ID: SH-1

Date Collected: 12/04/14 11:30

Date Received: 12/05/14 18:40

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Lab Sample ID: 180-39575-16

Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	1 mL		129078	12/22/14 15:22	MJH	TAL PIT
	Instrume	ent ID: CHICS2100B								
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	113556	12/08/14 16:02	RDD	TAL TAL
	Instrume	ent ID: CHLCJ								
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR
Total/NA	Analysis	In-House		10	2.5 mL	2.5 mL	81886	12/10/14 18:33	BWC	TAL BUR
	Instrume	ent ID: LC3062B								

Client Sample ID: SG-1 Lab Sample ID: 180-39575-17

Date Collected: 12/04/14 11:40 Matrix: Water

Date Received: 12/05/14 18:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrume	8260C ent ID: CHHP6		1	5 mL	5 mL	128456	12/16/14 16:12	DLF	TAL PIT
Total/NA	Prep	3520C			270 mL	0.25 mL	127798	12/10/14 08:26	BJT	TAL PIT
Total/NA	Analysis Instrume	8270C LL ent ID: CH731		1	270 mL	0.25 mL	128007	12/11/14 20:49	VVP	TAL PIT
Total/NA	Analysis Instrume	300.0 ent ID: CHICS2100B		1	1 mL		129078	12/22/14 15:39	MJH	TAL PIT
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis Instrume	8315A ent ID: CHLCJ		1	100 mL	4.0 mL	113556	12/08/14 16:14	RDD	TAL TAL
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR
Total/NA	Analysis Instrume	In-House ent ID: LC3062B		10	2.5 mL	2.5 mL	81886	12/10/14 18:55	BWC	TAL BUR

Client Sample ID: SG-6 Lab Sample ID: 180-39575-18

Date Collected: 12/04/14 13:00 Matrix: Water Date Received: 12/05/14 18:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrume	8260C ent ID: CHHP6		1	5 mL	5 mL	128456	12/16/14 16:36	DLF	TAL PIT
Total/NA	Prep	3520C			270 mL	0.25 mL	127798	12/10/14 08:26	BJT	TAL PIT
Total/NA	Analysis Instrume	8270C LL ent ID: CH731		1	270 mL	0.25 mL	128007	12/11/14 21:13	VVP	TAL PIT
Total/NA	Analysis Instrume	300.0 ent ID: CHICS2100B		1	1 mL		129078	12/22/14 15:57	MJH	TAL PIT
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis Instrume	8315A ent ID: CHLCJ		1	100 mL	4.0 mL	113556	12/08/14 16:26	RDD	TAL TAL
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Lab Sample ID: 180-39575-18

Matrix: Water

Date Collected: 12/04/14 13:00 Date Received: 12/05/14 18:40

Client Sample ID: SG-6

Batch Batch Dil Initial Final Batch Prepared Prep Type Туре Method Run Factor Amount Amount Number or Analyzed Analyst Lab Total/NA Analysis In-House 10 2.5 mL 2.5 mL 81886 12/10/14 19:17 BWC TAL BUR Instrument ID: LC3062B

Client Sample ID: SW-2_LANGAN Lab Sample ID: 180-39575-19

Date Collected: 12/04/14 13:10 Matrix: Water

Date Received: 12/05/14 18:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrume	8260C ent ID: CHHP6		1	5 mL	5 mL	128456	12/16/14 17:00	DLF	TAL PIT
Total/NA	Prep	3520C			270 mL	0.25 mL	127798	12/10/14 08:26	BJT	TAL PIT
Total/NA	Analysis Instrume	8270C LL ent ID: CH731		1	270 mL	0.25 mL	128007	12/11/14 21:37	VVP	TAL PIT
Total/NA	Analysis Instrume	300.0 ent ID: CHICS2100B		1	1 mL		129078	12/22/14 16:49	MJH	TAL PIT
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis Instrume	8315A ent ID: CHLCJ		1	100 mL	4.0 mL	113556	12/08/14 16:38	RDD	TAL TAL
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR
Total/NA	Analysis Instrume	In-House ent ID: LC3062B		10	2.5 mL	2.5 mL	81886	12/10/14 19:50	BWC	TAL BUR

Client Sample ID: SW-1_LANGAN Lab Sample ID: 180-39575-20

Date Collected: 12/04/14 13:20 Date Received: 12/05/14 18:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			270 mL	0.25 mL	127798	12/10/14 08:26	BJT	TAL PIT
Total/NA	Analysis Instrume	8270C LL ent ID: CH731		1	270 mL	0.25 mL	128007	12/11/14 22:01	VVP	TAL PIT
Total/NA	Analysis Instrume	300.0 ent ID: CHICS2100B		1	1 mL		129078	12/22/14 17:06	MJH	TAL PIT
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis Instrume	8315A ent ID: CHLCJ		1	100 mL	4.0 mL	113556	12/08/14 16:50	RDD	TAL TAL
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR
Total/NA	Analysis Instrume	In-House ent ID: LC3062B		10	2.5 mL	2.5 mL	81886	12/10/14 20:12	BWC	TAL BUR

Matrix: Water

TestAmerica Pittsburgh

12/30/2014

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: FB120414

Analysis

In-House Instrument ID: LC3062B

Date Collected: 12/04/14 14:40

Date Received: 12/05/14 18:40

TestAmerica Job ID: 180-39575-1

Lab Sample ID: 180-39575-21

12/10/14 20:34 BWC

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
	Instrume	ent ID: CHHP5								
Total/NA	Prep	3520C			260 mL	0.25 mL	127798	12/10/14 08:26	BJT	TAL PIT
Total/NA	Analysis	8270C LL		1	260 mL	0.25 mL	128007	12/11/14 22:25	VVP	TAL PIT
	Instrume	ent ID: CH731								
Total/NA	Analysis	300.0		1	1 mL		129078	12/22/14 17:23	MJH	TAL PIT
	Instrume	ent ID: CHICS2100B								
Total/NA	Prep	8315_W_Prep			100 mL	4.0 mL	113508	12/05/14 10:51	DNS	TAL TAL
Total/NA	Analysis	8315A		1	100 mL	4.0 mL	113556	12/08/14 17:01	RDD	TAL TAL
	Instrume	ent ID: CHLCJ								
Total/NA	Prep	In House			2.5 mL	2.5 mL	81835	12/09/14 15:47	BWC	TAL BUR

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Client Sample ID: TRIP BLANK

Lab Sample ID: 180-39575-22

Date Collected: 12/04/14 00:00 **Matrix: Water** Date Received: 12/05/14 18:40

2.5 mL

2.5 mL

81886

Batch Dil Initial Batch Final Batch Prepared Method Prep Type Туре Run Factor Amount Amount Number or Analyzed Analyst Lab TAL PIT Total/NA Analysis 8260C 5 mL 5 mL 128326 12/15/14 14:07 DLF Instrument ID: CHHP6

Laboratory References:

Total/NA

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994

TAL BUR

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Analyst References:

Lab: TAL BUR

Batch Type: Prep

BWC = Bradley Chirgwin

Batch Type: Analysis

BWC = Bradley Chirgwin

Lab: TAL PIT

Batch Type: Leach

CMR = Carl Reagle

Batch Type: Prep

BJT = Bill Trout

KLG = Kathy Gordon

Batch Type: Analysis

AB1 = Ashwin Baikadi

CMR = Carl Reagle

DLF = Donald Ferguson

KLG = Kathy Gordon

MJH = Matthew Hartman

VVP = Vincent Piccolino

Lab: TAL TAL

Batch Type: Prep

DNS = Daniel Smith

Batch Type: Analysis

DNS = Daniel Smith

RDD = Robert Driver

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Lab Sample ID: 180-39575-1

Matrix: Water

Client Sample ID: SW-5_LANGAN

Date Collected: 12/03/14 10:45 Date Received: 12/05/14 18:40

Method: 8260C - Volatile Organic (^{Analyte}		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,1,1-Trichloroethane	ND		1.0	0.29			<u> </u>	12/16/14 12:44	
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			12/16/14 12:44	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 12:44	
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 12:44	
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 12:44	
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 12:44	
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 12:44	
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 12:44	
1,2-Dichlorobenzene	0.63	J	1.0	0.15	ug/L			12/16/14 12:44	
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 12:44	
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 12:44	
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 12:44	
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 12:44	
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 12:44	
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 12:44	
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 12:44	
Acetone	2.5	J	5.0	2.5	ug/L			12/16/14 12:44	
Benzene	ND		1.0		ug/L			12/16/14 12:44	
Bromoform	ND		1.0	0.19	ug/L			12/16/14 12:44	
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 12:44	
Carbon disulfide	ND		1.0	0.21				12/16/14 12:44	
Carbon tetrachloride	ND		1.0		ug/L			12/16/14 12:44	
Chlorobenzene	0.34	J	1.0	0.14	-			12/16/14 12:44	
Chlorodibromomethane	ND		1.0		ug/L			12/16/14 12:44	
Chloroethane	ND		1.0		ug/L			12/16/14 12:44	
Chloroform	ND		1.0	0.17	-			12/16/14 12:44	
Chloromethane	ND		1.0	0.28				12/16/14 12:44	
cis-1,2-Dichloroethene	ND		1.0	0.24				12/16/14 12:44	
cis-1,3-Dichloropropene	ND		1.0		ug/L			12/16/14 12:44	
Cyclohexane	ND		1.0	0.25	-			12/16/14 12:44	
Dichlorobromomethane	ND		1.0		ug/L			12/16/14 12:44	
Dichlorodifluoromethane	ND		1.0	0.19	-			12/16/14 12:44	
Ethyl ether	8.6		1.0	0.082	-			12/16/14 12:44	
Ethylbenzene	ND		1.0		ug/L			12/16/14 12:44	
1,2-Dibromoethane	ND		1.0	0.18	-			12/16/14 12:44	
Isopropylbenzene	ND		1.0		ug/L			12/16/14 12:44	
Methyl acetate	ND		1.0	0.14				12/16/14 12:44	
Methyl tert-butyl ether	ND		1.0		ug/L			12/16/14 12:44	
Methylcyclohexane	ND		1.0		ug/L			12/16/14 12:44	
Methylene Chloride	ND		1.0		ug/L			12/16/14 12:44	
Styrene	ND		1.0	0.097				12/16/14 12:44	
Tetrachloroethene	ND		1.0		ug/L			12/16/14 12:44	
Toluene	ND		1.0		ug/L			12/16/14 12:44	
trans-1,2-Dichloroethene	ND		1.0		ug/L			12/16/14 12:44	
trans-1,3-Dichloropropene	ND		1.0		ug/L			12/16/14 12:44	
Trichloroethene	ND		1.0		ug/L			12/16/14 12:44	
Trichlorofluoromethane	ND		1.0		ug/L			12/16/14 12:44	
Vinyl chloride	ND		1.0		ug/L			12/16/14 12:44	

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Formaldehyde

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Client Sample ID: SW-5_LANGAN Lab Sample ID: 180-39575-1

Date Collected: 12/03/14 10:45
Date Received: 12/05/14 18:40
Matrix: Water

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102	64 - 135		12/16/14 12:44	1
4-Bromofluorobenzene (Surr)	102	70 - 118		12/16/14 12:44	1
Dibromofluoromethane (Surr)	107	70 - 128		12/16/14 12:44	1
Toluene-d8 (Surr)	98	71 - 118		12/16/14 12:44	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND ND		0.93	0.051	ug/L		12/09/14 08:31	12/10/14 12:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	79		30 - 150				12/09/14 08:31	12/10/14 12:21	1
2-Fluorobiphenyl	63		30 - 150				12/09/14 08:31	12/10/14 12:21	1
2-Fluorophenol	55		30 - 150				12/09/14 08:31	12/10/14 12:21	1
Nitrobenzene-d5	62		30 - 150				12/09/14 08:31	12/10/14 12:21	1
Phenol-d5	55		30 - 150				12/09/14 08:31	12/10/14 12:21	1
Terphenyl-d14	62		10 - 150				12/09/14 08:31	12/10/14 12:21	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	84		1.0	0.21	mg/L			12/20/14 20:20	1
Method: 8315A - Carbonyl Compou	unds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

50

5.0 ug/L

12/05/14 10:51

12/08/14 13:17

ND

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	890	50	18	ug/L		12/09/14 15:47	12/10/14 13:27	10
p-Phenolsulfonic acid	97	50	8.4	ug/L		12/09/14 15:47	12/10/14 13:27	10
Benzenesulfonic acid	ND	50	7.0	ug/L		12/09/14 15:47	12/10/14 13:27	10
Resorcinol	ND	50	5.9	ug/L		12/09/14 15:47	12/10/14 13:27	10
2,3',4-Trihydroxydiphenyl	ND	50	16	ug/L		12/09/14 15:47	12/10/14 13:27	10

Client Sample ID: SED-103

Date Collected: 12/03/14 11:00

Matrix: Solid

Date Received: 12/05/14 18:40

Lab Sample ID: 180-39575-2

Matrix: Solid

Percent Solids: 85.7

Analyte	Result Quali	ifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	5.8	0.57	ug/Kg	₩	12/10/14 05:05	12/10/14 09:22	1
1,1,2,2-Tetrachloroethane	ND	5.8	0.84	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.8	1.2	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
1,1,2-Trichloroethane	ND	5.8	0.97	ug/Kg	\$	12/10/14 05:05	12/10/14 09:22	1
1,1-Dichloroethane	ND	5.8	0.67	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
1,1-Dichloroethene	ND	5.8	0.99	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
1,2,4-Trichlorobenzene	ND	5.8	1.0	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
1,2-Dibromo-3-Chloropropane	ND	5.8	0.87	ug/Kg	₩	12/10/14 05:05	12/10/14 09:22	1
1,2-Dichlorobenzene	ND	5.8	0.93	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
1,2-Dichloroethane	ND	5.8	0.72	ug/Kg	\$	12/10/14 05:05	12/10/14 09:22	1
1,2-Dichloropropane	ND	5.8	0.63	ug/Kg	₩	12/10/14 05:05	12/10/14 09:22	1
1,3-Dichlorobenzene	ND	5.8	0.77	ug/Kg	₩	12/10/14 05:05	12/10/14 09:22	1

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Date Received: 12/05/14 18:40

Lab Sample ID: 180-39575-2

TestAmerica Job ID: 180-39575-1

Matrix: Solid

Percent Solids: 85.7

Client Sample ID: SED-103 Date Collected: 12/03/14 11:00

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued) Result Qualifier RL MDL Unit D Dil Fac Analyte Prepared Analyzed 1,4-Dichlorobenzene ND ug/Kg 12/10/14 05:05 12/10/14 09:22 5.8 0.74 12/10/14 09:22 2-Butanone (MEK) ND 5.8 12/10/14 05:05 1.0 ug/Kg ä 2-Hexanone ND 5.8 0.81 ug/Kg 12/10/14 05:05 12/10/14 09:22 φ 4-Methyl-2-pentanone (MIBK) ND 5.8 0.76 12/10/14 05:05 12/10/14 09:22 ug/Kg Acetone ND 23 5.8 ug/Kg 12/10/14 05:05 12/10/14 09:22 ND 5.8 ф 12/10/14 05:05 12/10/14 09:22 Benzene 0.79 ug/Kg ₽ Bromoform ND 5.8 0.52 ug/Kg 12/10/14 05:05 12/10/14 09:22 ND 5.8 12/10/14 05:05 12/10/14 09:22 Bromomethane 0.86 ug/Kg ₽ Carbon disulfide 1.4 5.8 0.60 ug/Kg 12/10/14 05:05 12/10/14 09:22 φ Carbon tetrachloride ND 5.8 0.52 ug/Kg 12/10/14 05:05 12/10/14 09:22 ₩ Chlorobenzene ND 5.8 88.0 ug/Kg 12/10/14 05:05 12/10/14 09:22 ₽ 12/10/14 05:05 Chlorodibromomethane ND 5.8 0.83 ug/Kg 12/10/14 09:22 ġ 12/10/14 09:22 Chloroethane ND 5.8 1.8 ug/Kg 12/10/14 05:05 Chloroform ND 5.8 0.68 ug/Kg 12/10/14 05:05 12/10/14 09:22 Chloromethane ND 0.99 ug/Kg 12/10/14 05:05 12/10/14 09:22 58 à cis-1,2-Dichloroethene ND 5.8 0.82 12/10/14 05:05 12/10/14 09:22 ug/Kg ND 12/10/14 05:05 cis-1,3-Dichloropropene 5.8 0.79 ug/Kg 12/10/14 09:22 Cyclohexane ND 5.8 12/10/14 05:05 12/10/14 09:22 ug/Kg ND ug/Kg ψ 12/10/14 05:05 12/10/14 09:22 Dichlorobromomethane 5.8 0.66 ₩ Dichlorodifluoromethane ND 5.8 0.78 ug/Kg 12/10/14 05:05 12/10/14 09:22 ug/Kg ₽ 5.8 0.68 12/10/14 05:05 12/10/14 09:22 Ethyl ether 8.1 ₩ 5.8 Ethylbenzene ND 0.75 ug/Kg 12/10/14 05:05 12/10/14 09:22 1,2-Dibromoethane ND 5.8 1.0 12/10/14 05:05 12/10/14 09:22 ug/Kg ġ Isopropylbenzene ND 5.8 0.79 ug/Kg 12/10/14 05:05 12/10/14 09:22 Methyl acetate ND 5.8 12/10/14 05:05 12/10/14 09:22 1.1 ug/Kg ND Methyl tert-butyl ether 5.8 0.87 12/10/14 05:05 12/10/14 09:22 ug/Kg Methylcyclohexane ND 12/10/14 05:05 12/10/14 09:22 5.8 0.85 ug/Kg 0.78 12/10/14 05:05 12/10/14 09:22 **Methylene Chloride** 6.1 5.8 ug/Kg ₩ ND 5.8 12/10/14 05:05 12/10/14 09:22 Styrene ug/Kg Tetrachloroethene ND 12/10/14 05:05 5.8 0.79 ug/Kg 12/10/14 09:22 à ug/Kg Toluene ND 5.8 0.85 12/10/14 05:05 12/10/14 09:22 trans-1.2-Dichloroethene ND 5.8 0.70 ug/Kg 12/10/14 05:05 12/10/14 09:22 ₩ trans-1,3-Dichloropropene ND 5.8 0.70 ug/Kg 12/10/14 05:05 12/10/14 09:22 ₽ Trichloroethene ND 5.8 0.77 12/10/14 05:05 12/10/14 09:22 ug/Kg \$ Trichlorofluoromethane ND 5.8 ug/Kg 12/10/14 05:05 12/10/14 09:22 Vinyl chloride ND 5.8 0.55 ug/Kg 12/10/14 05:05 12/10/14 09:22

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	76		52 - 124	12/10/14 05:05	12/10/14 09:22	1
4-Bromofluorobenzene (Surr)	87		63 - 120	12/10/14 05:05	12/10/14 09:22	1
Dibromofluoromethane (Surr)	91		68 - 121	12/10/14 05:05	12/10/14 09:22	1
Toluene-d8 (Surr)	102		72 - 127	12/10/14 05:05	12/10/14 09:22	1

Method: 300.0 - Anions, Ion Chron	natography - Soluble							
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	290	11	2.4	mg/Kg			12/24/14 11:28	1

Method: 8315A - Carbonyl Compou	ınds (HPLC)									
Analyte	Result	Qualifier	RL	MDL	Unit	D)	Prepared	Analyzed	Dil Fac
Formaldehyde	270		120	90	ug/Kg	₩	£ .	12/08/14 07:45	12/10/14 09:37	1

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-2

TestAmerica Job ID: 180-39575-1

Client Sample ID: SED-103 Date Collected: 12/03/14 11:00 Date Received: 12/05/14 18:40

Matrix: Solid

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	ND		20	20	ug/Kg		12/08/14 15:50	12/09/14 23:29	2
p-Phenolsulfonic acid	ND		20	20	ug/Kg		12/08/14 15:50	12/09/14 23:29	2
Benzenesulfonic acid	ND	*	20	20	ug/Kg		12/08/14 15:50	12/09/14 23:29	2
Resorcinol	ND		400	400	ug/Kg		12/08/14 15:50	12/09/14 20:23	40
2,3',4-Trihydroxydiphenyl	ND	*	1200	1200	ug/Kg		12/08/14 15:50	12/09/14 20:23	40

	General Chemistry Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Percent Moisture	14		0.10	0.10	%			12/08/14 15:03	1
l	Percent Solids	86		0.10	0.10	%			12/08/14 15:03	1

Client Sample ID: SW-4_LANGAN

Lab Sample ID: 180-39575-3

Date Collected: 12/03/14 11:10 Date Received: 12/05/14 18:40

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 15:56	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 15:56	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 15:56	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 15:56	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 15:56	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 15:56	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 15:56	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 15:56	1
1,2-Dichlorobenzene	0.75	J	1.0	0.15	ug/L			12/16/14 15:56	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 15:56	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 15:56	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 15:56	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 15:56	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 15:56	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 15:56	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 15:56	1
Acetone	2.6	J	5.0	2.5	ug/L			12/16/14 15:56	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 15:56	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 15:56	1
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 15:56	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 15:56	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 15:56	1
Chlorobenzene	0.45	J	1.0	0.14	ug/L			12/16/14 15:56	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 15:56	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 15:56	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 15:56	1
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 15:56	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 15:56	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 15:56	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 15:56	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 15:56	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 15:56	1
Ethyl ether	8.1		1.0	0.082	ug/L			12/16/14 15:56	1

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Date Received: 12/05/14 18:40

m-Benzenedisulfonic acid

p-Phenolsulfonic acid

2,3',4-Trihydroxydiphenyl

Benzenesulfonic acid

Resorcinol

TestAmerica Job ID: 180-39575-1

Lab Sample ID: 180-39575-3

Client Sample ID: SW-4_LANGAN Date Collected: 12/03/14 11:10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 15:56	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 15:56	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 15:56	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 15:56	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 15:56	1
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 15:56	1
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 15:56	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 15:56	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 15:56	1
Toluene	ND		1.0	0.15	ug/L			12/16/14 15:56	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 15:56	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 15:56	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 15:56	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 15:56	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 15:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		64 - 135			-		12/16/14 15:56	1
4-Bromofluorobenzene (Surr)	104		70 - 118					12/16/14 15:56	1
Dibromofluoromethane (Surr)	102		70 - 128					12/16/14 15:56	1
Toluene-d8 (Surr)	97		71 - 118					12/16/14 15:56	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/09/14 08:31	12/10/14 12:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	83		30 - 150				12/09/14 08:31	12/10/14 12:50	1
2-Fluorobiphenyl	73		30 - 150				12/09/14 08:31	12/10/14 12:50	1
2-Fluorophenol	62		30 - 150				12/09/14 08:31	12/10/14 12:50	1
Nitrobenzene-d5	70		30 - 150				12/09/14 08:31	12/10/14 12:50	1
Phenol-d5	64		30 - 150				12/09/14 08:31	12/10/14 12:50	1
Terphenyl-d14	73		10 - 150				12/09/14 08:31	12/10/14 12:50	1
- Method: 300.0 - Anions, Io	n Chromatography								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	83		1.0	0.21	mg/L			12/20/14 20:55	1
Method: 8315A - Carbonyl	Compounds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	ND ND		50	5.0	ug/L		12/05/14 10:51	12/08/14 13:29	1
- Method: In-House - Sulfon	ic Acids by LCMS/MS	6							
Analyte	•	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac

TestAmerica Pittsburgh

12/30/2014

12/10/14 13:59

12/10/14 13:59

12/10/14 13:59

12/10/14 13:59

12/10/14 13:59

50

50

50

50

50

18 ug/L

8.4 ug/L

7.0 ug/L

5.9 ug/L

16 ug/L

12/09/14 15:47

12/09/14 15:47

12/09/14 15:47

12/09/14 15:47

12/09/14 15:47

550

73

ND

ND

ND

10

10

10

10

10

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-4

TestAmerica Job ID: 180-39575-1

Matrix: Solid

Percent Solids: 73.3

Client Sample ID: SED-102

Date Collected: 12/03/14 11:20 Date Received: 12/05/14 18:40

Analyte	Result Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
1,1,1-Trichloroethane	ND	6.8	0.66	ug/Kg	*	12/10/14 05:05	12/10/14 07:07	
1,1,2,2-Tetrachloroethane	ND	6.8	0.98	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	6.8	1.5	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,1,2-Trichloroethane	ND	6.8	1.1	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,1-Dichloroethane	ND	6.8	0.78	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,1-Dichloroethene	ND	6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	
1,2,4-Trichlorobenzene	ND	6.8	1.2	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,2-Dibromo-3-Chloropropane	ND	6.8	1.0	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,2-Dichlorobenzene	3.0 J	6.8	1.1	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,2-Dichloroethane	ND	6.8	0.84	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,2-Dichloropropane	ND	6.8	0.74	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,3-Dichlorobenzene	ND	6.8	0.89	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,4-Dichlorobenzene	ND	6.8	0.87	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
2-Butanone (MEK)	ND	6.8	1.2	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
2-Hexanone	ND	6.8	0.94	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
4-Methyl-2-pentanone (MIBK)	ND	6.8	0.89	ug/Kg		12/10/14 05:05	12/10/14 07:07	
Acetone	ND	27	6.8	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Benzene	17	6.8	0.92	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Bromoform	ND	6.8	0.60	ug/Kg		12/10/14 05:05	12/10/14 07:07	
Bromomethane	ND	6.8	1.0	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Carbon disulfide	ND	6.8	0.70	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Carbon tetrachloride	ND	6.8	0.61	ug/Kg		12/10/14 05:05	12/10/14 07:07	
Chlorobenzene	2.3 J	6.8	1.0	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Chlorodibromomethane	ND	6.8	0.97	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Chloroethane	ND	6.8	2.1			12/10/14 05:05	12/10/14 07:07	
Chloroform	ND	6.8	0.80	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Chloromethane	ND	6.8	1.2	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
cis-1,2-Dichloroethene	ND	6.8	0.96	ug/Kg		12/10/14 05:05	12/10/14 07:07	
cis-1,3-Dichloropropene	ND	6.8		ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Cyclohexane	11	6.8	0.51	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Dichlorobromomethane	ND	6.8	0.77			12/10/14 05:05	12/10/14 07:07	
Dichlorodifluoromethane	ND	6.8	0.91	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Ethyl ether	ND	6.8		ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Ethylbenzene	3.1 J	6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	
1,2-Dibromoethane	ND	6.8		ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Isopropylbenzene	2.0 J	6.8		ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Methyl acetate	ND	6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	
Methyl tert-butyl ether	ND	6.8		ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Methylcyclohexane	48	6.8		ug/Kg ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Methylene Chloride	4.6 JB	6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	
Styrene	ND	6.8		ug/Kg ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Tetrachloroethene	ND	6.8		ug/Kg ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Toluene	ND	6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	
trans-1,2-Dichloroethene	ND	6.8		ug/Kg ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
trans-1,3-Dichloropropene	ND *	6.8		ug/Kg ug/Kg		12/10/14 05:05	12/10/14 07:07	
Trichloroethene	ND	6.8		ug/Kg ug/Kg		12/10/14 05:05	12/10/14 07:07	
Trichlorofluoromethane	ND ND	6.8		ug/Kg ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Vinyl chloride	ND	6.8		ug/Kg ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	

6

a

10

11

1

2

4

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-102 Lab Sample ID: 180-39575-4

Date Collected: 12/03/14 11:20 Matrix: Solid Date Received: 12/05/14 18:40 Percent Solids: 73.3

Surrogate	%Recovery Q	Qualifier Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	74	52 - 124	12/10/14 05:05	12/10/14 07:07	1
4-Bromofluorobenzene (Surr)	79	63 - 120	12/10/14 05:05	12/10/14 07:07	1
Dibromofluoromethane (Surr)	90	68 - 121	12/10/14 05:05	12/10/14 07:07	1
Toluene-d8 (Surr)	108	72 - 127	12/10/14 05:05	12/10/14 07:07	1

Method: 300.0 - Anions, Ion Chrom	atography -	Soluble							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	140		130	29	mg/Kg	*		12/24/14 11:43	10

Method: 8315A - Carbonyl Compou	ınds (HPLC)									
Analyte	Result	Qualifier	RL	MDL	Unit	D)	Prepared	Analyzed	Dil Fac
Formaldehyde	1100		140	110	ug/Kg	₽	£ -	12/08/14 07:45	12/10/14 09:49	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	400		20	20	ug/Kg		12/08/14 15:50	12/09/14 23:51	2
p-Phenolsulfonic acid	ND		20	20	ug/Kg		12/08/14 15:50	12/09/14 23:51	2
Benzenesulfonic acid	ND	*	20	20	ug/Kg		12/08/14 15:50	12/09/14 23:51	2
Resorcinol	ND		400	400	ug/Kg		12/08/14 15:50	12/09/14 20:56	40
2,3',4-Trihydroxydiphenyl	ND	*	1200	1200	ug/Kg		12/08/14 15:50	12/09/14 20:56	40

General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	27		0.10	0.10	%			12/08/14 15:03	1
Percent Solids	73		0.10	0.10	%			12/08/14 15:03	1

Client Sample ID: SW-3_LANGAN Lab Sample ID: 180-39575-5 Date Collected: 12/03/14 11:40 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 16:21	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 16:21	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 16:21	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 16:21	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 16:21	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 16:21	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 16:21	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 16:21	1
1,2-Dichlorobenzene	0.76	J	1.0	0.15	ug/L			12/16/14 16:21	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 16:21	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 16:21	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 16:21	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 16:21	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 16:21	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 16:21	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 16:21	1
Acetone	3.8	J	5.0	2.5	ug/L			12/16/14 16:21	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 16:21	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 16:21	1

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TestAmerica Job ID: 180-39575-1

TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-5

TestAmerica Job ID: 180-39575-1

Matrix: Water

Client Sample ID: SW-3_LANGAN

Date Collected: 12/03/14 11:40 Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 16:21	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 16:21	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 16:21	1
Chlorobenzene	0.42	J	1.0	0.14	ug/L			12/16/14 16:21	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 16:21	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 16:21	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 16:21	1
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 16:21	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 16:21	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 16:21	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 16:21	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 16:21	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 16:21	1
Ethyl ether	13		1.0	0.082	ug/L			12/16/14 16:21	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 16:21	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 16:21	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 16:21	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 16:21	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 16:21	1
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 16:21	1
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 16:21	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 16:21	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 16:21	1
Toluene	ND		1.0	0.15	ug/L			12/16/14 16:21	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 16:21	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 16:21	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 16:21	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 16:21	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 16:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		64 - 135			_		12/16/14 16:21	1
4-Bromofluorobenzene (Surr)	103		70 - 118					12/16/14 16:21	1
Dibromofluoromethane (Surr)	103		70 - 128					12/16/14 16:21	1
Toluene-d8 (Surr)	96		71 - 118					12/16/14 16:21	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/09/14 08:31	12/10/14 13:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	69		30 - 150				12/09/14 08:31	12/10/14 13:18	1
2-Fluorobiphenyl	51		30 - 150				12/09/14 08:31	12/10/14 13:18	1
2-Fluorophenol	38		30 - 150				12/09/14 08:31	12/10/14 13:18	1
Nitrobenzene-d5	45		30 - 150				12/09/14 08:31	12/10/14 13:18	1
Phenol-d5	42		30 - 150				12/09/14 08:31	12/10/14 13:18	1
Terphenyl-d14	71		10 - 150				12/09/14 08:31	12/10/14 13:18	1

TestAmerica Pittsburgh

3

5

8

10

12

1:

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-3_LANGAN Lab Sample ID: 180-39575-5

Date Collected: 12/03/14 11:40 Matrix: Water

Date Received: 12/05/14 18:40

Method: 300.0 - Anions, Ion Chromatography Analyte Result Qualifier RLMDL Unit D Prepared Analyzed Dil Fac Sulfate 84 1.0 0.21 mg/L 12/20/14 22:39

Method: 8315A - Carbonyl Compounds (HPLC) Result Qualifier RL MDL Unit D Dil Fac Prepared Analyzed Formaldehyde 50 12/05/14 10:51 12/08/14 13:41 ND 5.0 ug/L

Method: In-House - Sulfonic Acids by LCMS/MS Result Qualifier RL MDL Unit Prepared Analyzed Dil Fac m-Benzenedisulfonic acid 2300 50 10 18 ug/L 12/09/14 15:47 12/10/14 14:21 p-Phenolsulfonic acid 270 50 8.4 ug/L 12/09/14 15:47 12/10/14 14:21 10 50 ug/L 7.0 12/09/14 15:47 12/10/14 14:21 10 Benzenesulfonic acid 12 J Resorcinol 21 50 ug/L 12/09/14 15:47 12/10/14 14:21 10 2,3',4-Trihydroxydiphenyl ND 50 16 ug/L 12/09/14 15:47 12/10/14 14:21 10

Client Sample ID: SED-101 Lab Sample ID: 180-39575-6

Date Collected: 12/03/14 12:00 **Matrix: Solid** Percent Solids: 83.8

		(1.10)						
Method: 8260B - Volatile Organic (Analyte	Compounds (GC/ Result Qua	•	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	6.0	0.58	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
1,1,2,2-Tetrachloroethane	ND	6.0	0.86	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	6.0	1.3	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
1,1,2-Trichloroethane	ND	6.0	0.99	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
1,1-Dichloroethane	ND	6.0	0.69	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
1,1-Dichloroethene	ND	6.0	1.0	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
1,2,4-Trichlorobenzene	ND	6.0	1.1	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
1,2-Dibromo-3-Chloropropane	ND	6.0	0.89	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
1,2-Dichlorobenzene	1.3 J	6.0	0.95	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
1,2-Dichloroethane	ND	6.0	0.73	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
1,2-Dichloropropane	ND	6.0	0.65	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
1,3-Dichlorobenzene	ND	6.0	0.78	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
1,4-Dichlorobenzene	ND	6.0	0.76	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
2-Butanone (MEK)	ND	6.0	1.1	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
2-Hexanone	ND	6.0	0.82	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
4-Methyl-2-pentanone (MIBK)	ND	6.0	0.78	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
Acetone	ND	24	6.0	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Benzene	ND	6.0	0.81	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Bromoform	ND	6.0	0.53	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
Bromomethane	ND	6.0	0.88	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Carbon disulfide	ND	6.0	0.61	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Carbon tetrachloride	ND	6.0	0.53	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
Chlorobenzene	ND	6.0	0.90	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Chlorodibromomethane	ND	6.0	0.85	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Chloroethane	ND	6.0	1.8	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
Chloroform	ND	6.0	0.70	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Chloromethane	ND	6.0	1.0	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
cis-1,2-Dichloroethene	ND	6.0	0.84	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
cis-1,3-Dichloropropene	ND	6.0	0.81	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Cyclohexane	ND	6.0	0.44	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1

TestAmerica Pittsburgh

TestAmerica Job ID: 180-39575-1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-101

Date Collected: 12/03/14 12:00

Date Received: 12/05/14 18:40

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Method: In-House - Sulfonic Acids by LCMS/MS

Result Qualifier

85000

7200

850

ND

ND

16

84

Result Qualifier

Analyte

Resorcinol

Analyte

m-Benzenedisulfonic acid

p-Phenolsulfonic acid

Benzenesulfonic acid

2,3',4-Trihydroxydiphenyl

General Chemistry

Percent Moisture Percent Solids

Lab Sample ID: 180-39575-6

TestAmerica Job ID: 180-39575-1

Matrix: Solid

Percent Solids: 83.8

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorobromomethane	ND		6.0	0.67	ug/Kg	-	12/10/14 05:05	12/10/14 09:44	1
Dichlorodifluoromethane	ND		6.0	0.79	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Ethyl ether	11		6.0	0.70	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Ethylbenzene	ND		6.0	0.77	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
1,2-Dibromoethane	ND		6.0	1.0	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Isopropylbenzene	ND		6.0	0.81	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Methyl acetate	ND		6.0	1.1	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Methyl tert-butyl ether	ND		6.0	0.89	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Methylcyclohexane	ND		6.0	0.86	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Methylene Chloride	4.5	JB	6.0	0.80	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Styrene	ND		6.0	0.84	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Tetrachloroethene	ND		6.0	0.81	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Toluene	ND		6.0	0.87	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
trans-1,2-Dichloroethene	ND		6.0	0.71	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
trans-1,3-Dichloropropene	ND	*	6.0	0.71	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Trichloroethene	ND		6.0	0.78	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Trichlorofluoromethane	ND		6.0	1.1	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Vinyl chloride	ND		6.0	0.56	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	77		52 - 124				12/10/14 05:05	12/10/14 09:44	1
4-Bromofluorobenzene (Surr)	83		63 - 120				12/10/14 05:05	12/10/14 09:44	1
Dibromofluoromethane (Surr)	92		68 - 121				12/10/14 05:05	12/10/14 09:44	1
Toluene-d8 (Surr)	100		72 - 127				12/10/14 05:05	12/10/14 09:44	1
Method: 300.0 - Anions, Ion C	hromatography -	Soluble							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1600	В	12	2.5	mg/Kg	<u> </u>		12/30/14 02:22	1
Method: 8315A - Carbonyl Coi	mpounds (HPLC)								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	1100		120	92	ug/Kg	-	12/08/14 07:45	12/10/14 10:24	1

RL

990

400

400

400

1200

RL

0.10

0.10

RL Unit

400 ug/Kg

1200 ug/Kg

RL Unit

0.10 %

0.10 %

ug/Kg

990

400 ug/Kg

400 ug/Kg D

D

Prepared

12/08/14 15:50

12/08/14 15:50

12/08/14 15:50

12/08/14 15:50

12/08/14 15:50

Prepared

TestAmerica Pittsburgl	Te	stAme	erica	Pittsb	urgl
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Dil Fac

100

40

40

40

40

Dil Fac

Analyzed

12/09/14 21:51

12/09/14 22:01

12/09/14 22:01

12/09/14 22:01

12/09/14 22:01

Analyzed

12/08/14 15:03

12/08/14 15:03

Client: ARCADIS U.S. Inc

Styrene

Toluene

Tetrachloroethene

Trichloroethene

Vinyl chloride

trans-1,2-Dichloroethene

trans-1,3-Dichloropropene

Trichlorofluoromethane

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: DUP120314

Date Collected: 12/03/14 00:00

Lab Sample ID: 180-39575-7

TestAmerica Job ID: 180-39575-1

Matrix: Solid

Date Received: 12/05/14 18:40							Percent Soli	401 101
Method: 8260B - Volatile Organic (Analyte	Compounds (GC/MS) Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,1,1-Trichloroethane	ND -	6.3	0.61			12/10/14 05:05	12/10/14 10:06	
1,1,2,2-Tetrachloroethane	ND	6.3	0.90	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	6.3		ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
1,1,2-Trichloroethane	ND	6.3	1.0	ug/Kg		12/10/14 05:05	12/10/14 10:06	
1,1-Dichloroethane	ND	6.3	0.72	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
1,1-Dichloroethene	ND	6.3	1.1	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
1,2,4-Trichlorobenzene	ND	6.3	1.1		φ.	12/10/14 05:05	12/10/14 10:06	
1,2-Dibromo-3-Chloropropane	ND	6.3	0.94	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
1,2-Dichlorobenzene	2.1 J	6.3	1.0	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
1,2-Dichloroethane	ND	6.3	0.77	ug/Kg		12/10/14 05:05	12/10/14 10:06	
1,2-Dichloropropane	ND	6.3	0.68	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
1,3-Dichlorobenzene	ND	6.3	0.82	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
1,4-Dichlorobenzene	ND	6.3	0.80	ug/Kg		12/10/14 05:05	12/10/14 10:06	
2-Butanone (MEK)	ND	6.3	1.1	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
2-Hexanone	ND	6.3	0.87	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
4-Methyl-2-pentanone (MIBK)	ND	6.3	0.82	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Acetone	ND	25	6.3	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Benzene	ND	6.3	0.85	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
Bromoform	ND	6.3	0.56	ug/Kg	φ.	12/10/14 05:05	12/10/14 10:06	
Bromomethane	ND	6.3	0.93	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
Carbon disulfide	1.5 J	6.3	0.64	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
Carbon tetrachloride	ND	6.3	0.56	ug/Kg		12/10/14 05:05	12/10/14 10:06	
Chlorobenzene	ND	6.3	0.95	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
Chlorodibromomethane	ND	6.3	0.89	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Chloroethane	ND	6.3	1.9	ug/Kg		12/10/14 05:05	12/10/14 10:06	
Chloroform	ND	6.3	0.74	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
Chloromethane	ND	6.3	1.1	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
cis-1,2-Dichloroethene	ND	6.3	0.88	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
cis-1,3-Dichloropropene	ND	6.3	0.85	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Cyclohexane	ND	6.3	0.47	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Dichlorobromomethane	ND	6.3	0.71	ug/Kg	\$	12/10/14 05:05	12/10/14 10:06	
Dichlorodifluoromethane	ND	6.3	0.84	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Ethyl ether	13	6.3	0.74	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Ethylbenzene	ND	6.3	0.81	ug/Kg	.	12/10/14 05:05	12/10/14 10:06	
1,2-Dibromoethane	ND	6.3	1.1	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Isopropylbenzene	ND	6.3	0.85	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
Methyl acetate	ND	6.3	1.1	ug/Kg		12/10/14 05:05	12/10/14 10:06	
Methyl tert-butyl ether	ND	6.3	0.94	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Methylcyclohexane	ND	6.3	0.91	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
Methylene Chloride	5.5 JB	6.3	0.85	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	

12/10/14 10:06

12/10/14 10:06

12/10/14 10:06

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0.89 ug/Kg

0.86 ug/Kg

0.92 ug/Kg

0.75 ug/Kg

0.75 ug/Kg

0.83 ug/Kg

1.2 ug/Kg

0.59 ug/Kg

ND

ND

ND

ND

ND

ND

ND

ND

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA Client Sample ID: DUP120314

Date Collected: 12/03/14 00:00

Lab Sample ID: 180-39575-7

TestAmerica Job ID: 180-39575-1

Matrix: Solid

ls: 79.5

Date Received: 12/05/14 18:40						Percent Soli	ds
Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	
1,2-Dichloroethane-d4 (Surr)	78		52 - 124	-	12/10/14 05:05	12/10/14 10:06	

Toluene-d8 (Surr)	105	72 - 127	12/10/14 05:05	12/10/14 10:06	1
Dibromofluoromethane (Surr)	93	68 - 121	12/10/14 05:05	12/10/14 10:06	1
4-Bromofluorobenzene (Surr)	81	63 - 120	12/10/14 05:05	12/10/14 10:06	1
1,2-Dichloroethane-d4 (Surr)	78	52 ₋ 124	12/10/14 05:05	12/10/14 10:06	1

Method: 300.0 - Anions, Ion Chron	natography -	Soluble							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1500	В	12	2.7	mg/Kg			12/30/14 02:38	1

Method: 8315A - Carbonyl Compo	unds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	560		130	98	ug/Kg	<u></u>	12/08/14 07:45	12/10/14 10:36	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	85000		990	990	ug/Kg		12/08/14 15:50	12/09/14 22:34	100
p-Phenolsulfonic acid	7400		390	390	ug/Kg		12/08/14 15:50	12/09/14 22:56	40
Benzenesulfonic acid	870	*	390	390	ug/Kg		12/08/14 15:50	12/09/14 22:56	40
Resorcinol	ND		390	390	ug/Kg		12/08/14 15:50	12/09/14 22:56	40
2,3',4-Trihydroxydiphenyl	ND	*	1200	1200	ug/Kg		12/08/14 15:50	12/09/14 22:56	40

General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	20		0.10	0.10	%			12/08/14 15:03	1
Percent Solids	80		0.10	0.10	%			12/08/14 15:03	1

Client Sample ID: SG-7 Lab Sample ID: 180-39575-8 Date Collected: 12/03/14 12:20 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result Qu	ıalifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			12/16/14 16:45	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			12/16/14 16:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			12/16/14 16:45	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			12/16/14 16:45	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			12/16/14 16:45	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			12/16/14 16:45	1
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			12/16/14 16:45	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			12/16/14 16:45	1
1,2-Dichlorobenzene	0.83 J	1.0	0.15	ug/L			12/16/14 16:45	1
1,2-Dichloroethane	ND	1.0	0.21	ug/L			12/16/14 16:45	1
1,2-Dichloropropane	ND	1.0	0.095	ug/L			12/16/14 16:45	1
1,3-Dichlorobenzene	ND	1.0	0.11	ug/L			12/16/14 16:45	1
1,4-Dichlorobenzene	ND	1.0	0.21	ug/L			12/16/14 16:45	1
2-Butanone (MEK)	ND	5.0	0.55	ug/L			12/16/14 16:45	1
2-Hexanone	ND	5.0	0.16	ug/L			12/16/14 16:45	1
4-Methyl-2-pentanone (MIBK)	ND	5.0	0.53	ug/L			12/16/14 16:45	1
Acetone	4.1 J	5.0	2.5	ug/L			12/16/14 16:45	1
Benzene	ND	1.0	0.11	ug/L			12/16/14 16:45	1
Bromoform	ND	1.0	0.19	ug/L			12/16/14 16:45	1

TestAmerica Pittsburgh

Dil Fac

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-8

TestAmerica Job ID: 180-39575-1

Matrix: Water

Client Sample ID: SG-7

Date Collected: 12/03/14 12:20 Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 16:45	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 16:45	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 16:45	1
Chlorobenzene	0.49	J	1.0	0.14	ug/L			12/16/14 16:45	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 16:45	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 16:45	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 16:45	1
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 16:45	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 16:45	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 16:45	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 16:45	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 16:45	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 16:45	1
Ethyl ether	12		1.0	0.082	ug/L			12/16/14 16:45	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 16:45	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 16:45	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 16:45	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 16:45	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 16:45	1
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 16:45	1
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 16:45	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 16:45	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 16:45	1
Toluene	ND		1.0	0.15	ug/L			12/16/14 16:45	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 16:45	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 16:45	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 16:45	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 16:45	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 16:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		64 - 135			-		12/16/14 16:45	1
4-Bromofluorobenzene (Surr)	106		70 - 118					12/16/14 16:45	1
Dibromofluoromethane (Surr)	100		70 - 128					12/16/14 16:45	1
Toluene-d8 (Surr)	100		71 - 118					12/16/14 16:45	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/09/14 08:31	12/10/14 13:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	84		30 - 150				12/09/14 08:31	12/10/14 13:46	1
2-Fluorobiphenyl	64		30 - 150				12/09/14 08:31	12/10/14 13:46	1
2-Fluorophenol	50		30 - 150				12/09/14 08:31	12/10/14 13:46	1
Nitrobenzene-d5	56		30 - 150				12/09/14 08:31	12/10/14 13:46	1
Phenol-d5	51		30 - 150				12/09/14 08:31	12/10/14 13:46	1
Terphenyl-d14	80		10 - 150				12/09/14 08:31	12/10/14 13:46	1

TestAmerica Pittsburgh

12/30/2014

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Date Received: 12/05/14 18:40

Lab Sample ID: 180-39575-8

TestAmerica Job ID: 180-39575-1

Client Sample ID: SG-7 Date Collected: 12/03/14 12:20

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

MDL Unit Analyte Result Qualifier RLD Prepared Analyzed Dil Fac Sulfate 79 1.0 0.21 mg/L 12/22/14 14:47

Method: 8315A - Carbonyl Compounds (HPLC)

Result Qualifier RL MDL Unit D Dil Fac Prepared Analyzed 50 5.0 ug/L 12/05/14 10:51 12/08/14 13:53 Formaldehyde 6.3 J

Method: In-House - Sulfonic Acids by LCMS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	440		50	18	ug/L		12/09/14 15:47	12/10/14 14:43	10
p-Phenolsulfonic acid	45	J	50	8.4	ug/L		12/09/14 15:47	12/10/14 14:43	10
Benzenesulfonic acid	ND		50	7.0	ug/L		12/09/14 15:47	12/10/14 14:43	10
Resorcinol	ND		50	5.9	ug/L		12/09/14 15:47	12/10/14 14:43	10
2,3',4-Trihydroxydiphenyl	ND		50	16	ug/L		12/09/14 15:47	12/10/14 14:43	10

Client Sample ID: SG-5 Lab Sample ID: 180-39575-9

Date Collected: 12/03/14 12:35 **Matrix: Water**

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 17:09	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 17:09	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 17:09	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 17:09	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 17:09	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 17:09	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 17:09	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 17:09	1
1,2-Dichlorobenzene	1.0		1.0	0.15	ug/L			12/16/14 17:09	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 17:09	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 17:09	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 17:09	1
1,4-Dichlorobenzene	0.23	J	1.0	0.21	ug/L			12/16/14 17:09	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 17:09	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 17:09	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 17:09	1
Acetone	3.4	J	5.0	2.5	ug/L			12/16/14 17:09	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 17:09	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 17:09	1
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 17:09	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 17:09	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 17:09	1
Chlorobenzene	0.63	J	1.0	0.14	ug/L			12/16/14 17:09	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 17:09	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 17:09	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 17:09	1
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 17:09	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 17:09	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 17:09	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 17:09	1

TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc

Client Sample ID: SG-5

Date Collected: 12/03/14 12:35

Date Received: 12/05/14 18:40

Formaldehyde

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-9

TestAmerica Job ID: 180-39575-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 17:09	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 17:09	1
Ethyl ether	5.8		1.0	0.082	ug/L			12/16/14 17:09	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 17:09	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 17:09	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 17:09	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 17:09	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 17:09	1
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 17:09	1
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 17:09	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 17:09	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 17:09	1
Toluene	ND		1.0	0.15	ug/L			12/16/14 17:09	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 17:09	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 17:09	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 17:09	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 17:09	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 17:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		64 - 135			-		12/16/14 17:09	1
4-Bromofluorobenzene (Surr)	102		70 - 118					12/16/14 17:09	1
Dibromofluoromethane (Surr)	104		70 - 128					12/16/14 17:09	1
Toluene-d8 (Surr)	99		71 - 118					12/16/14 17:09	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/09/14 08:31	12/10/14 14:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	83		30 - 150				12/09/14 08:31	12/10/14 14:14	1
2-Fluorobiphenyl	69		30 - 150				12/09/14 08:31	12/10/14 14:14	1
2-Fluorophenol	56		30 - 150				12/09/14 08:31	12/10/14 14:14	1
Nitrobenzene-d5	64		30 - 150				12/09/14 08:31	12/10/14 14:14	1
Phenol-d5	57		30 - 150				12/09/14 08:31	12/10/14 14:14	1
Terphenyl-d14	79		10 - 150				12/09/14 08:31	12/10/14 14:14	1
Method: 300.0 - Anions, Ioi	n Chromatography								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	78		1.0	0.21	mg/L			12/20/14 23:48	1

Method: In-House - Sulfonic Acids by LCMS/MS										
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac		
m-Benzenedisulfonic acid	2300	50	18	ug/L		12/09/14 15:47	12/10/14 15:15	10		
p-Phenolsulfonic acid	210	50	8.4	ug/L		12/09/14 15:47	12/10/14 15:15	10		
Benzenesulfonic acid	13 J	50	7.0	ug/L		12/09/14 15:47	12/10/14 15:15	10		
Resorcinol	170	50	5.9	ug/L		12/09/14 15:47	12/10/14 15:15	10		

MDL Unit

5.0 ug/L

12/05/14 10:51

Result Qualifier

6.0 J

TestAmerica Pittsburgh

12/08/14 14:04

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-9

TestAmerica Job ID: 180-39575-1

Matrix: Water

Client Sample ID: SG-5 Date Collected: 12/03/14 12:35

Date Received: 12/05/14 18:40

Method: In-House - Sulfonic Acids by	LCMS/MS (Co	ntinued)
Amalusta	Desuit Ousli	er.

Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
2,3',4-Trihydroxydiphenyl	ND	50	16 ug/L		12/09/14 15:47	12/10/14 15:15	10

Lab Sample ID: 180-39575-10 Client Sample ID: SG-4

Matrix: Water Date Collected: 12/04/14 09:55

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/15/14 13:43	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/15/14 13:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/15/14 13:43	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/15/14 13:43	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/15/14 13:43	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/15/14 13:43	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/15/14 13:43	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/15/14 13:43	1
1,2-Dichlorobenzene	1.1		1.0	0.15	ug/L			12/15/14 13:43	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/15/14 13:43	,
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/15/14 13:43	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/15/14 13:43	1
1,4-Dichlorobenzene	0.25	J	1.0	0.21	ug/L			12/15/14 13:43	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/15/14 13:43	1
2-Hexanone	ND		5.0	0.16	ug/L			12/15/14 13:43	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/15/14 13:43	1
Acetone	ND		5.0	2.5	ug/L			12/15/14 13:43	
Benzene	ND		1.0	0.11	ug/L			12/15/14 13:43	1
Bromoform	ND		1.0	0.19	ug/L			12/15/14 13:43	• • • • • • • •
Bromomethane	ND		1.0	0.31	ug/L			12/15/14 13:43	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/15/14 13:43	
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/15/14 13:43	
Chlorobenzene	0.75	J	1.0	0.14	ug/L			12/15/14 13:43	
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/15/14 13:43	
Chloroethane	ND		1.0	0.21	ug/L			12/15/14 13:43	1
Chloroform	ND		1.0	0.17	ug/L			12/15/14 13:43	1
Chloromethane	ND		1.0	0.28	ug/L			12/15/14 13:43	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/15/14 13:43	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/15/14 13:43	
Cyclohexane	ND		1.0	0.25	ug/L			12/15/14 13:43	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/15/14 13:43	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/15/14 13:43	1
Ethyl ether	1.1		1.0	0.082				12/15/14 13:43	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/15/14 13:43	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/15/14 13:43	
Isopropylbenzene	ND		1.0		ug/L			12/15/14 13:43	
Methyl acetate	ND		1.0		ug/L			12/15/14 13:43	,
Methyl tert-butyl ether	ND		1.0		ug/L			12/15/14 13:43	
Methylcyclohexane	ND		1.0		ug/L			12/15/14 13:43	
Methylene Chloride	ND		1.0		ug/L			12/15/14 13:43	1
Styrene	ND		1.0	0.097	-			12/15/14 13:43	1
Tetrachloroethene	ND		1.0		ug/L			12/15/14 13:43	1

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TestAmerica Job ID: 180-39575-1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-4

Lab Sample ID: 180-39575-10 Date Collected: 12/04/14 09:55

Matrix: Water

Date Received: 12/05/14 18:40

Method: 300.0 - Anions, Ion Chromatography

Analyte

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0	0.15	ug/L			12/15/14 13:43	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/15/14 13:43	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/15/14 13:43	1
Trichloroethene	ND		1.0	0.14	ug/L			12/15/14 13:43	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/15/14 13:43	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/15/14 13:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		64 - 135			-		12/15/14 13:43	1
4-Bromofluorobenzene (Surr)	100		70 - 118					12/15/14 13:43	1
Dibromofluoromethane (Surr)	99		70 - 128					12/15/14 13:43	1
Toluene-d8 (Surr)	104		71 - 118					12/15/14 13:43	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND ND		0.93	0.051	ug/L		12/10/14 08:24	12/11/14 17:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	82		30 - 150				12/10/14 08:24	12/11/14 17:01	1
2-Fluorobiphenyl	74		30 - 150				12/10/14 08:24	12/11/14 17:01	1
2-Fluorophenol	55		30 - 150				12/10/14 08:24	12/11/14 17:01	1
Nitrobenzene-d5	72		30 - 150				12/10/14 08:24	12/11/14 17:01	1
Phenol-d5	57		30 - 150				12/10/14 08:24	12/11/14 17:01	1
Terphenyl-d14	61		10 - 150				12/10/14 08:24	12/11/14 17:01	1

Sulfate	79	1.0	0.21 mg/L		12/22/14 13:28	1
Method: 8315A - Carbonyl Compo	inds (HPI C)					
Analyte	Result Qualifier	RL	MDL Unit	D Prepared	Analyzed	Dil Fac
Formaldehyde	85 J	50	5.0 ug/l	12/05/14 10:51	12/08/14 14:16	1

Result Qualifier

RL

MDL Unit

Prepared

Analyzed

Dil Fac

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	2700		50	18	ug/L		12/09/14 15:47	12/10/14 15:38	10
p-Phenolsulfonic acid	220		50	8.4	ug/L		12/09/14 15:47	12/10/14 15:38	10
Benzenesulfonic acid	23	J	50	7.0	ug/L		12/09/14 15:47	12/10/14 15:38	10
Resorcinol	420		50	5.9	ug/L		12/09/14 15:47	12/10/14 15:38	10
2,3',4-Trihydroxydiphenyl	ND		50	16	ug/L		12/09/14 15:47	12/10/14 15:38	10

Client Sample ID: SG-3 Lab Sample ID: 180-39575-11 Date Collected: 12/04/14 10:20 **Matrix: Water** Date Received: 12/05/14 18:40

Method: 8260C - Volatile Organic (Compounds (GC/MS)							
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			12/16/14 17:33	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			12/16/14 17:33	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			12/16/14 17:33	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			12/16/14 17:33	1

TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

Toluene-d8 (Surr)

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-11

TestAmerica Job ID: 180-39575-1

Matrix: Water

Client Sample ID: SG-3 Date Collected: 12/04/14 10:20 Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 17:33	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 17:33	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 17:33	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 17:33	1
1,2-Dichlorobenzene	1.5		1.0	0.15	ug/L			12/16/14 17:33	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 17:33	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 17:33	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 17:33	1
1,4-Dichlorobenzene	0.27	J	1.0	0.21	ug/L			12/16/14 17:33	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 17:33	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 17:33	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 17:33	1
Acetone	3.2	J	5.0	2.5	ug/L			12/16/14 17:33	1
Benzene	0.11	J	1.0	0.11	ug/L			12/16/14 17:33	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 17:33	1
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 17:33	1
Carbon disulfide	ND		1.0	0.21				12/16/14 17:33	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 17:33	1
Chlorobenzene	0.98	J	1.0	0.14	_			12/16/14 17:33	1
Chlorodibromomethane	ND		1.0	0.14	_			12/16/14 17:33	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 17:33	1
Chloroform	ND		1.0	0.17				12/16/14 17:33	1
Chloromethane	ND		1.0	0.28				12/16/14 17:33	1
cis-1,2-Dichloroethene	ND		1.0	0.24				12/16/14 17:33	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 17:33	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 17:33	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 17:33	1
Dichlorodifluoromethane	ND		1.0	0.19				12/16/14 17:33	1
Ethyl ether	1.6		1.0	0.082	ug/L			12/16/14 17:33	1
Ethylbenzene	ND		1.0	0.23				12/16/14 17:33	1
1,2-Dibromoethane	ND		1.0	0.18	-			12/16/14 17:33	1
Isopropylbenzene	ND		1.0	0.16	_			12/16/14 17:33	1
Methyl acetate	ND		1.0	0.14				12/16/14 17:33	1
Methyl tert-butyl ether	ND		1.0	0.18	-			12/16/14 17:33	1
Methylcyclohexane	ND		1.0	0.26	_			12/16/14 17:33	1
Methylene Chloride	ND		1.0	0.13	-			12/16/14 17:33	1
Styrene	ND		1.0	0.097				12/16/14 17:33	1
Tetrachloroethene	ND		1.0	0.15	-			12/16/14 17:33	1
Toluene	ND		1.0	0.15				12/16/14 17:33	
trans-1,2-Dichloroethene	ND		1.0	0.17				12/16/14 17:33	1
trans-1,3-Dichloropropene	ND		1.0	0.15	-			12/16/14 17:33	1
Trichloroethene	ND		1.0	0.14				12/16/14 17:33	
Trichlorofluoromethane	ND		1.0	0.20				12/16/14 17:33	1
Vinyl chloride	ND		1.0	0.23	-			12/16/14 17:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac

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12/16/14 17:33

12/16/14 17:33

12/16/14 17:33

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-3 Lab Sample ID: 180-39575-11

Date Collected: 12/04/14 10:20 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/10/14 08:24	12/11/14 18:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	87		30 - 150				12/10/14 08:24	12/11/14 18:25	1
2-Fluorobiphenyl	72		30 - 150				12/10/14 08:24	12/11/14 18:25	1
2-Fluorophenol	64		30 - 150				12/10/14 08:24	12/11/14 18:25	1
Nitrobenzene-d5	70		30 - 150				12/10/14 08:24	12/11/14 18:25	1
Phenol-d5	67		30 - 150				12/10/14 08:24	12/11/14 18:25	1
Terphenyl-d14	62		10 - 150				12/10/14 08:24	12/11/14 18:25	1
Analyte		Qualifier	RL	MDL 0.21		D	Prepared	Analyzed	Dil Fac
Sulfate	82		1.0	0.21	mg/L			12/21/14 00:23	
Method: 8315A - Carbonyl Co	mpounds (HPLC)								,
Method: 8315A - Carbonyl Co Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<u>-</u>		Qualifier	RL	MDL 5.0	Unit ug/L	<u>D</u>	Prepared 12/05/14 10:51	Analyzed 12/08/14 14:52	Dil Fac
Analyte Formaldehyde	Result 8.7	Qualifier J				<u>D</u>			Dil Fac
Analyte Formaldehyde Method: In-House - Sulfonic A	Result 8.7 Acids by LCMS/MS	Qualifier J			ug/L	<u>D</u>			1
Analyte	Result 8.7 Acids by LCMS/MS	Qualifier J	50	5.0	ug/L		12/05/14 10:51	12/08/14 14:52	Dil Fac Dil Fac 10

Client Sample ID: DUP120414 Lab Sample ID: 180-39575-12

50

50

50

27 J

440

ND

7.0 ug/L

5.9 ug/L

16 ug/L

12/09/14 15:47

12/09/14 15:47

12/09/14 15:47

Date Collected: 12/04/14 00:00 Date Received: 12/05/14 18:40

Benzenesulfonic acid

2,3',4-Trihydroxydiphenyl

Resorcinol

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 17:57	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 17:57	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 17:57	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 17:57	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 17:57	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 17:57	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 17:57	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 17:57	1
1,2-Dichlorobenzene	1.4		1.0	0.15	ug/L			12/16/14 17:57	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 17:57	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 17:57	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 17:57	1
1,4-Dichlorobenzene	0.29	J	1.0	0.21	ug/L			12/16/14 17:57	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 17:57	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 17:57	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 17:57	1
Acetone	ND		5.0	2.5	ug/L			12/16/14 17:57	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 17:57	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 17:57	1

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TestAmerica Job ID: 180-39575-1

10 10

10

Matrix: Water

12/10/14 16:21

12/10/14 16:21

12/10/14 16:21

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-12

TestAmerica Job ID: 180-39575-1

Matrix: Water

Client Sample ID: DUP120414

Date Collected: 12/04/14 00:00 Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 17:57	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 17:57	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 17:57	1
Chlorobenzene	0.97	J	1.0	0.14	ug/L			12/16/14 17:57	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 17:57	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 17:57	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 17:57	1
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 17:57	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 17:57	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 17:57	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 17:57	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 17:57	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 17:57	1
Ethyl ether	1.6		1.0	0.082	ug/L			12/16/14 17:57	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 17:57	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 17:57	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 17:57	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 17:57	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 17:57	1
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 17:57	1
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 17:57	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 17:57	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 17:57	1
Toluene	ND		1.0	0.15	ug/L			12/16/14 17:57	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 17:57	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 17:57	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 17:57	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 17:57	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 17:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		64 - 135			-		12/16/14 17:57	1
4-Bromofluorobenzene (Surr)	103		70 - 118					12/16/14 17:57	1
Dibromofluoromethane (Surr)	103		70 - 128					12/16/14 17:57	1
Toluene-d8 (Surr)	100		71 - 118					12/16/14 17:57	1

Method: 8270C LL - Semivo Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/10/14 08:24	12/11/14 18:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	102		30 - 150				12/10/14 08:24	12/11/14 18:49	1
2-Fluorobiphenyl	79		30 - 150				12/10/14 08:24	12/11/14 18:49	1
2-Fluorophenol	65		30 - 150				12/10/14 08:24	12/11/14 18:49	1
Nitrobenzene-d5	75		30 - 150				12/10/14 08:24	12/11/14 18:49	1
Phenol-d5	65		30 - 150				12/10/14 08:24	12/11/14 18:49	1
Terphenyl-d14	80		10 - 150				12/10/14 08:24	12/11/14 18:49	1

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: DUP120414

Date Collected: 12/04/14 00:00 Date Received: 12/05/14 18:40 Lab Sample ID: 180-39575-12

TestAmerica Job ID: 180-39575-1

Matrix: Water

Method: 300.0 - Anions, Ion Chron	natography							
Analyte	Result Qualifier	RL	MDL I	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	80	1.0	0.21	mg/L			12/21/14 00:57	1

Method: 8315A - Carbonyl Compou	ınds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	9.1	J	50	5.0	ug/L		12/05/14 10:51	12/08/14 15:15	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	2600		50	18	ug/L		12/09/14 15:47	12/10/14 16:43	10
p-Phenolsulfonic acid	160		50	8.4	ug/L		12/09/14 15:47	12/10/14 16:43	10
Benzenesulfonic acid	20	J	50	7.0	ug/L		12/09/14 15:47	12/10/14 16:43	10
Resorcinol	430		50	5.9	ug/L		12/09/14 15:47	12/10/14 16:43	10
2,3',4-Trihydroxydiphenyl	ND		50	16	ug/L		12/09/14 15:47	12/10/14 16:43	10

Client Sample ID: SG-8 Lab Sample ID: 180-39575-13

Date Collected: 12/04/14 10:45 Matrix: Water

Method: 8260C - Volatile Organic (Analyte	•	(GC/MS) Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			12/16/14 18:45	
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			12/16/14 18:45	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0		ug/L			12/16/14 18:45	
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 18:45	· · · · · · .
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 18:45	
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 18:45	
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 18:45	• • • • • • • • • • • • • • • • • • • •
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 18:45	
1,2-Dichlorobenzene	1.0		1.0	0.15	ug/L			12/16/14 18:45	
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 18:45	· · · · · · · · ·
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 18:45	
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 18:45	
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 18:45	· · · · · · · · ·
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 18:45	
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 18:45	
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 18:45	,
Acetone	3.1	J	5.0	2.5	ug/L			12/16/14 18:45	•
Benzene	ND		1.0	0.11	ug/L			12/16/14 18:45	•
Bromoform	ND		1.0	0.19	ug/L			12/16/14 18:45	
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 18:45	•
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 18:45	•
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 18:45	
Chlorobenzene	0.65	J	1.0	0.14	ug/L			12/16/14 18:45	•
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 18:45	
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 18:45	
Chloroform	ND		1.0	0.17	ug/L			12/16/14 18:45	•
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 18:45	•
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 18:45	
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 18:45	•
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 18:45	

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Client Sample ID: SG-8

Date Collected: 12/04/14 10:45

Date Received: 12/05/14 18:40

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-13

TestAmerica Job ID: 180-39575-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 18:45	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 18:45	1
Ethyl ether	0.49	J	1.0	0.082	ug/L			12/16/14 18:45	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 18:45	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 18:45	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 18:45	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 18:45	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 18:45	1
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 18:45	1
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 18:45	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 18:45	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 18:45	1
Toluene	ND		1.0	0.15	ug/L			12/16/14 18:45	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 18:45	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 18:45	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 18:45	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 18:45	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 18:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		64 - 135					12/16/14 18:45	1
4-Bromofluorobenzene (Surr)	109		70 - 118					12/16/14 18:45	1
Dibromofluoromethane (Surr)	104		70 - 128					12/16/14 18:45	1
Toluene-d8 (Surr)	100		71 - 118					12/16/14 18:45	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	0.50	J	0.93	0.051	ug/L		12/10/14 08:24	12/11/14 19:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	97		30 - 150				12/10/14 08:24	12/11/14 19:13	1
2-Fluorobiphenyl	78		30 - 150				12/10/14 08:24	12/11/14 19:13	1
2-Fluorophenol	68		30 - 150				12/10/14 08:24	12/11/14 19:13	1
Nitrobenzene-d5	74		30 - 150				12/10/14 08:24	12/11/14 19:13	1
Phenol-d5	71		30 - 150				12/10/14 08:24	12/11/14 19:13	1
Terphenyl-d14	68		10 - 150				12/10/14 08:24	12/11/14 19:13	1
Method: 300.0 - Anions, lor	n Chromatography								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	77		1.0	0.21	mg/L			12/21/14 01:32	1
Method: 8315A - Carbonyl	Compounds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	7.0		50	5.0	ug/L		12/05/14 10:51	12/08/14 15:27	

- Method: In-House - Sulfonic Ac	ids by LCMS/MS							
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	190	50	18	ug/L		12/09/14 15:47	12/10/14 17:17	10
p-Phenolsulfonic acid	94	50	8.4	ug/L		12/09/14 15:47	12/10/14 17:17	10
Benzenesulfonic acid	ND	50	7.0	ug/L		12/09/14 15:47	12/10/14 17:17	10
Resorcinol	540	50	5.9	ug/L		12/09/14 15:47	12/10/14 17:17	10

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-8 Lab Sample ID: 180-39575-13

Date Collected: 12/04/14 10:45

Matrix: Water

Date Received: 12/05/14 18:40

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Analyte	Result Qualifier	RL	MDL U	nit D	Prepared	Analyzed	Dil Fac
2,3',4-Trihydroxydiphenyl	ND	50	16 uç	g/L	12/09/14 15:47	12/10/14 17:17	10

Client Sample ID: SW-1 Lab Sample ID: 180-39575-14

Date Collected: 12/04/14 10:55 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 19:09	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 19:09	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 19:09	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 19:09	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 19:09	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 19:09	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 19:09	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 19:09	1
1,2-Dichlorobenzene	0.70	J	1.0	0.15	ug/L			12/16/14 19:09	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 19:09	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 19:09	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 19:09	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 19:09	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 19:09	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 19:09	1
4-Methyl-2-pentanone (MIBK)	ND .		5.0	0.53	ug/L			12/16/14 19:09	1
Acetone	ND		5.0	2.5	ug/L			12/16/14 19:09	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 19:09	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 19:09	1
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 19:09	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 19:09	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 19:09	1
Chlorobenzene	0.32	J	1.0	0.14	ug/L			12/16/14 19:09	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 19:09	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 19:09	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 19:09	1
Chloromethane	ND		1.0		ug/L			12/16/14 19:09	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 19:09	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 19:09	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 19:09	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 19:09	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 19:09	1
Ethyl ether	0.26	J	1.0	0.082	ug/L			12/16/14 19:09	1
Ethylbenzene	ND		1.0	0.23				12/16/14 19:09	1
1,2-Dibromoethane	ND		1.0	0.18				12/16/14 19:09	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 19:09	1
Methyl acetate	ND		1.0		ug/L			12/16/14 19:09	1
Methyl tert-butyl ether	ND		1.0		ug/L			12/16/14 19:09	1
Methylcyclohexane	ND		1.0		ug/L			12/16/14 19:09	1
Methylene Chloride	ND		1.0		ug/L			12/16/14 19:09	1
Styrene	ND		1.0	0.097				12/16/14 19:09	1
Tetrachloroethene	ND		1.0		ug/L			12/16/14 19:09	1

TestAmerica Pittsburgh

TestAmerica Job ID: 180-39575-1

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TestAmerica Job ID: 180-39575-1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-1

Lab Sample ID: 180-39575-14 Date Collected: 12/04/14 10:55

Matrix: Water

Date Received: 12/05/14 18:40

Method: 300.0 - Anions, Ion Chromatography

Analyte

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0	0.15	ug/L			12/16/14 19:09	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 19:09	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 19:09	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 19:09	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 19:09	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 19:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		64 - 135			-		12/16/14 19:09	1
4-Bromofluorobenzene (Surr)	102		70 - 118					12/16/14 19:09	1
Dibromofluoromethane (Surr)	104		70 - 128					12/16/14 19:09	1
Toluene-d8 (Surr)	98		71 - 118					12/16/14 19:09	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND ND		0.93	0.051	ug/L		12/10/14 08:24	12/11/14 19:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	102		30 - 150				12/10/14 08:24	12/11/14 19:37	1
2-Fluorobiphenyl	90		30 - 150				12/10/14 08:24	12/11/14 19:37	1
2-Fluorophenol	79		30 - 150				12/10/14 08:24	12/11/14 19:37	1
Nitrobenzene-d5	88		30 - 150				12/10/14 08:24	12/11/14 19:37	1
Phenol-d5	80		30 - 150				12/10/14 08:24	12/11/14 19:37	1
Terphenyl-d14	79		10 - 150				12/10/14 08:24	12/11/14 19:37	1

Sulfate	75		1.0	0.21	mg/L			12/21/14 02:07	1
Method: 8315A - Carbonyl Compo	unds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	8.6	J	50	5.0	ug/L		12/05/14 10:51	12/08/14 15:39	1

RL

MDL Unit

Prepared

Result Qualifier

Analyte	Result Q	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	88		50	18	ug/L		12/09/14 15:47	12/10/14 17:38	10
p-PhenoIsulfonic acid	ND		50	8.4	ug/L		12/09/14 15:47	12/10/14 17:38	10
Benzenesulfonic acid	ND		50	7.0	ug/L		12/09/14 15:47	12/10/14 17:38	10
Resorcinol	450		50	5.9	ug/L		12/09/14 15:47	12/10/14 17:38	10
2,3',4-Trihydroxydiphenyl	ND		50	16	ug/L		12/09/14 15:47	12/10/14 17:38	10

Client Sample ID: SG-2 Lab Sample ID: 180-39575-15 Date Collected: 12/04/14 11:15 Matrix: Water Date Received: 12/05/14 18:40

Method: 8260C - Volatile Organic Compounds (GC/MS)										
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac		
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			12/16/14 19:34	1		
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			12/16/14 19:34	1		
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			12/16/14 19:34	1		
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			12/16/14 19:34	1		

TestAmerica Pittsburgh

Dil Fac

Analyzed

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-15

TestAmerica Job ID: 180-39575-1

Client Sample ID: SG-2 Date Collected: 12/04/14 11:15

Date Received: 12/05/14 18:40

Matrix: Water

Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 19:34	
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 19:34	
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 19:34	
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 19:34	
1,2-Dichlorobenzene	0.69	J	1.0	0.15	ug/L			12/16/14 19:34	
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 19:34	
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 19:34	
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 19:34	
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 19:34	
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 19:34	
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 19:34	
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 19:34	
Acetone	ND		5.0	2.5	ug/L			12/16/14 19:34	
Benzene	ND		1.0	0.11	ug/L			12/16/14 19:34	
Bromoform	ND		1.0	0.19	ug/L			12/16/14 19:34	· · · · · · · · ·
Bromomethane	ND		1.0	0.31				12/16/14 19:34	
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 19:34	
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 19:34	
Chlorobenzene	0.18	J	1.0	0.14				12/16/14 19:34	
Chlorodibromomethane	ND		1.0	0.14				12/16/14 19:34	
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 19:34	· · · · · · .
Chloroform	ND		1.0	0.17				12/16/14 19:34	
Chloromethane	ND		1.0	0.28				12/16/14 19:34	
cis-1,2-Dichloroethene	ND		1.0	0.24				12/16/14 19:34	· · · · · · .
cis-1,3-Dichloropropene	ND		1.0	0.19				12/16/14 19:34	
Cyclohexane	ND		1.0	0.25				12/16/14 19:34	
Dichlorobromomethane	ND		1.0	0.13				12/16/14 19:34	· · · · · · .
Dichlorodifluoromethane	ND		1.0	0.19				12/16/14 19:34	
Ethyl ether	0.17	J	1.0	0.082				12/16/14 19:34	
Ethylbenzene	ND		1.0	0.23				12/16/14 19:34	
1,2-Dibromoethane	ND		1.0	0.18				12/16/14 19:34	
Isopropylbenzene	ND		1.0	0.16	-			12/16/14 19:34	
Methyl acetate	ND		1.0	0.14				12/16/14 19:34	
Methyl tert-butyl ether	ND		1.0	0.18	-			12/16/14 19:34	
Methylcyclohexane	ND		1.0	0.26	-			12/16/14 19:34	
Methylene Chloride	ND		1.0	0.13	-			12/16/14 19:34	· · · · · .
Styrene	ND		1.0	0.097				12/16/14 19:34	
Tetrachloroethene	ND		1.0	0.15				12/16/14 19:34	
Toluene	ND		1.0	0.15				12/16/14 19:34	· · · · · .
trans-1,2-Dichloroethene	ND		1.0		ug/L			12/16/14 19:34	
trans-1,3-Dichloropropene	ND		1.0		ug/L			12/16/14 19:34	
Trichloroethene	ND		1.0		ug/L ug/L			12/16/14 19:34	· · · · · .
Trichlorofluoromethane	ND		1.0	0.14	-			12/16/14 19:34	
Vinyl chloride	ND		1.0	0.23	-			12/16/14 19:34	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	108		64 - 135			-		12/16/14 19:34	
4-Bromofluorobenzene (Surr)	100		70 - 118					12/16/14 19:34	
Dibromofluoromethane (Surr)	108		70 - 128					12/16/14 19:34	

TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc

2,3',4-Trihydroxydiphenyl

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-2 Lab Sample ID: 180-39575-15

Date Collected: 12/04/14 11:15 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/10/14 08:26	12/11/14 20:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
2,4,6-Tribromophenol	86		30 - 150				12/10/14 08:26	12/11/14 20:01	-
2-Fluorobiphenyl	83		30 - 150				12/10/14 08:26	12/11/14 20:01	1
2-Fluorophenol	68		30 - 150				12/10/14 08:26	12/11/14 20:01	1
Nitrobenzene-d5	69		30 - 150				12/10/14 08:26	12/11/14 20:01	1
Phenol-d5	68		30 - 150				12/10/14 08:26	12/11/14 20:01	1
Terphenyl-d14	59		10 - 150				12/10/14 08:26	12/11/14 20:01	
Sulfate Mothod: 9315A Carbonyl Comm	74		1.0	0.21	mg/L			12/22/14 15:05	
Method: 8315A - Carbonyl Comp									
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
					ug/L				
Formaldehyde -	11	J	50	5.0	ug/L		12/05/14 10:51	12/08/14 15:51	•
Formaldehyde Method: In-House - Sulfonic Aci			50	5.0	ug/L		12/05/14 10.51	12/06/14 15.51	,
•	ds by LCMS/MS		50 R L	5.0 MDL	Ū	D	Prepared	Analyzed	Dil Fac
: Method: In-House - Sulfonic Aci	ds by LCMS/MS	5			Ū	<u>D</u>			Dil Fac
Method: In-House - Sulfonic Aci Analyte	ds by LCMS/MS	5	RL	MDL 18	Unit	<u>D</u>	Prepared	Analyzed	
Method: In-House - Sulfonic Aci Analyte m-Benzenedisulfonic acid	ds by LCMS/MS Result	5	RL 50	MDL 18 8.4	Unit ug/L	<u>D</u>	Prepared 12/09/14 15:47	Analyzed 12/10/14 18:00	10

Client Sample ID: SH-1 Lab Sample ID: 180-39575-16

50

16 ug/L

Date Collected: 12/04/14 11:30 Date Received: 12/05/14 18:40

ND

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			12/16/14 15:48	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			12/16/14 15:48	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			12/16/14 15:48	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			12/16/14 15:48	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			12/16/14 15:48	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			12/16/14 15:48	1
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			12/16/14 15:48	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			12/16/14 15:48	1
1,2-Dichlorobenzene	ND	1.0	0.15	ug/L			12/16/14 15:48	1
1,2-Dichloroethane	ND	1.0	0.21	ug/L			12/16/14 15:48	1
1,2-Dichloropropane	ND	1.0	0.095	ug/L			12/16/14 15:48	1
1,3-Dichlorobenzene	ND	1.0	0.11	ug/L			12/16/14 15:48	1
1,4-Dichlorobenzene	ND	1.0	0.21	ug/L			12/16/14 15:48	1
2-Butanone (MEK)	ND	5.0	0.55	ug/L			12/16/14 15:48	1
2-Hexanone	ND	5.0	0.16	ug/L			12/16/14 15:48	1
4-Methyl-2-pentanone (MIBK)	ND	5.0	0.53	ug/L			12/16/14 15:48	1
Acetone	ND	5.0	2.5	ug/L			12/16/14 15:48	1
Benzene	ND	1.0	0.11	ug/L			12/16/14 15:48	1
Bromoform	ND	1.0	0.19	ug/L			12/16/14 15:48	1

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TestAmerica Job ID: 180-39575-1

12/10/14 18:00

12/09/14 15:47

Matrix: Water

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-16

TestAmerica Job ID: 180-39575-1

Matrix: Water

Client Sample ID: SH-1
Date Collected: 12/04/14 11:30

Date Received: 12/05/14 18:40

Matr

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 15:48	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 15:48	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 15:48	1
Chlorobenzene	ND		1.0	0.14	ug/L			12/16/14 15:48	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 15:48	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 15:48	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 15:48	1
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 15:48	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 15:48	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 15:48	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 15:48	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 15:48	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 15:48	1
Ethyl ether	0.10	J	1.0	0.082	ug/L			12/16/14 15:48	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 15:48	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 15:48	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 15:48	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 15:48	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 15:48	1
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 15:48	1
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 15:48	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 15:48	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 15:48	1
Toluene	ND		1.0	0.15	ug/L			12/16/14 15:48	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 15:48	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 15:48	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 15:48	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 15:48	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 15:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		64 - 135			-		12/16/14 15:48	1
4-Bromofluorobenzene (Surr)	101		70 - 118					12/16/14 15:48	1
Dibromofluoromethane (Surr)	104		70 - 128					12/16/14 15:48	1
Toluene-d8 (Surr)	101		71 - 118					12/16/14 15:48	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/10/14 08:26	12/11/14 20:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	89		30 - 150				12/10/14 08:26	12/11/14 20:25	1
2-Fluorobiphenyl	80		30 - 150				12/10/14 08:26	12/11/14 20:25	1
2-Fluorophenol	63		30 - 150				12/10/14 08:26	12/11/14 20:25	1
Nitrobenzene-d5	74		30 - 150				12/10/14 08:26	12/11/14 20:25	1
Phenol-d5	65		30 - 150				12/10/14 08:26	12/11/14 20:25	1
Terphenyl-d14	61		10 - 150				12/10/14 08:26	12/11/14 20:25	1

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-16

TestAmerica Job ID: 180-39575-1

Matrix: Water

Client Sample ID: SH-1 Date Collected: 12/04/14 11:30 Date Received: 12/05/14 18:40

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	74	1.0	0.21	mg/L			12/22/14 15:22	1
T								

Method: 8315A - Carbonyl Compoเ	ınds (HPLC)							
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	11 J	50	5.0	ug/L		12/05/14 10:51	12/08/14 16:02	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	90		50	18	ug/L		12/09/14 15:47	12/10/14 18:33	10
p-Phenolsulfonic acid	ND		50	8.4	ug/L		12/09/14 15:47	12/10/14 18:33	10
Benzenesulfonic acid	ND		50	7.0	ug/L		12/09/14 15:47	12/10/14 18:33	10
Resorcinol	350		50	5.9	ug/L		12/09/14 15:47	12/10/14 18:33	10
2,3',4-Trihydroxydiphenyl	ND		50	16	ug/L		12/09/14 15:47	12/10/14 18:33	10

Client Sample ID: SG-1 Lab Sample ID: 180-39575-17

Date Collected: 12/04/14 11:40 Matrix: Water

Method: 8260C - Volatile Organic Analyte		(GC/MS) Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L	— <u> </u>		12/16/14 16:12	
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 16:12	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 16:12	
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 16:12	
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 16:12	
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 16:12	
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 16:12	
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 16:12	
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			12/16/14 16:12	
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 16:12	,
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 16:12	
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 16:12	
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 16:12	,
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 16:12	
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 16:12	
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 16:12	,
Acetone	ND		5.0	2.5	ug/L			12/16/14 16:12	•
Benzene	ND		1.0	0.11	ug/L			12/16/14 16:12	•
Bromoform	ND		1.0	0.19	ug/L			12/16/14 16:12	,
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 16:12	•
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 16:12	
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 16:12	
Chlorobenzene	ND		1.0	0.14	ug/L			12/16/14 16:12	•
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 16:12	•
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 16:12	
Chloroform	ND		1.0	0.17	ug/L			12/16/14 16:12	•
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 16:12	•
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 16:12	
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 16:12	•
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 16:12	

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Client: ARCADIS U.S. Inc

Client Sample ID: SG-1

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

Toluene-d8 (Surr)

Date Collected: 12/04/14 11:40

Date Received: 12/05/14 18:40

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-17

TestAmerica Job ID: 180-39575-1

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12/16/14 16:12 12/16/14 16:12

12/16/14 16:12

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 16:12	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 16:12	1
Ethyl ether	ND		1.0	0.082	ug/L			12/16/14 16:12	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 16:12	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 16:12	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 16:12	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 16:12	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 16:12	1
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 16:12	1
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 16:12	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 16:12	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 16:12	1
Toluene	ND		1.0	0.15	ug/L			12/16/14 16:12	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 16:12	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 16:12	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 16:12	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 16:12	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 16:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		64 - 135			-		12/16/14 16:12	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/10/14 08:26	12/11/14 20:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	80		30 - 150				12/10/14 08:26	12/11/14 20:49	1
2-Fluorobiphenyl	73		30 - 150				12/10/14 08:26	12/11/14 20:49	1
2-Fluorophenol	65		30 - 150				12/10/14 08:26	12/11/14 20:49	1
Nitrobenzene-d5	72		30 - 150				12/10/14 08:26	12/11/14 20:49	1
Phenol-d5	68		30 - 150				12/10/14 08:26	12/11/14 20:49	1
Terphenyl-d14	51		10 - 150				12/10/14 08:26	12/11/14 20:49	1

70 - 118

70 - 128

71 - 118

99

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Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	74		1.0	0.21	mg/L			12/22/14 15:39	1

Method: 8315A - Carbonyl Compo	unds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	12	J	50	5.0	ug/L		12/05/14 10:51	12/08/14 16:14	1

Method: In-House - Sulfonic Aci	ds by LCMS/MS							
Analyte	Result Qual	lifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	81	50	18	ug/L		12/09/14 15:47	12/10/14 18:55	10
p-Phenolsulfonic acid	ND	50	8.4	ug/L		12/09/14 15:47	12/10/14 18:55	10
Benzenesulfonic acid	ND	50	7.0	ug/L		12/09/14 15:47	12/10/14 18:55	10
Resorcinol	ND	50	5.9	ug/L		12/09/14 15:47	12/10/14 18:55	10

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-17

TestAmerica Job ID: 180-39575-1

Matrix: Water

Date Collected: 12/04/14 11:40 Date Received: 12/05/14 18:40

Client Sample ID: SG-1

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
2,3',4-Trihydroxydiphenyl	ND	50	16 ug/L		12/09/14 15:47	12/10/14 18:55	10

Client Sample ID: SG-6 Lab Sample ID: 180-39575-18

Date Collected: 12/04/14 13:00 Matrix: Water

Date Received: 12/05/14 18:40

Method: 8260C - Volatile Orgar						_			5
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
1,1,1-Trichloroethane	ND		1.0	0.29	-			12/16/14 16:36	•
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	_			12/16/14 16:36	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32				12/16/14 16:36	1
1,1,2-Trichloroethane	ND		1.0	0.20	-			12/16/14 16:36	1
1,1-Dichloroethane	ND		1.0	0.12	-			12/16/14 16:36	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 16:36	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	-			12/16/14 16:36	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 16:36	•
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			12/16/14 16:36	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 16:36	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 16:36	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 16:36	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 16:36	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 16:36	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 16:36	1
1-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 16:36	1
Acetone	ND		5.0	2.5	ug/L			12/16/14 16:36	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 16:36	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 16:36	1
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 16:36	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 16:36	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 16:36	1
Chlorobenzene	ND		1.0	0.14	ug/L			12/16/14 16:36	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 16:36	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 16:36	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 16:36	1
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 16:36	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 16:36	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 16:36	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 16:36	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 16:36	1
Dichlorodifluoromethane	ND		1.0	0.19	-			12/16/14 16:36	1
Ethyl ether	ND		1.0	0.082	-			12/16/14 16:36	1
Ethylbenzene	ND		1.0	0.23				12/16/14 16:36	1
1,2-Dibromoethane	ND		1.0	0.18	-			12/16/14 16:36	1
sopropylbenzene	ND		1.0	0.16				12/16/14 16:36	1
Methyl acetate	ND		1.0	0.14				12/16/14 16:36	
Methyl tert-butyl ether	ND		1.0		ug/L			12/16/14 16:36	1
Methylcyclohexane	ND		1.0	0.26	-			12/16/14 16:36	1
Methylene Chloride	ND		1.0	0.13				12/16/14 16:36	
Styrene	ND		1.0	0.097				12/16/14 16:36	1
Fetrachloroethene	ND		1.0		ug/L			12/16/14 16:36	1

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12/30/2014

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L

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-6 Date Collected: 12/04/14 13:00

Date Received: 12/05/14 18:40

Lab Sample ID: 180-39575-18

Matrix: Water

Analyte	Result Qualifier	RL	MDL Uni	it D	Prepared	Analyzed	Dil Fac
Toluene	ND ND	1.0	0.15 ug/l			12/16/14 16:36	1
trans-1,2-Dichloroethene	ND	1.0	0.17 ug/l	Ľ		12/16/14 16:36	1
trans-1,3-Dichloropropene	ND	1.0	0.15 ug/l	L		12/16/14 16:36	1
Trichloroethene	ND	1.0	0.14 ug/l	L		12/16/14 16:36	1
Trichlorofluoromethane	ND	1.0	0.20 ug/l	L		12/16/14 16:36	1
Vinyl chloride	ND	1.0	0.23 ug/l	L		12/16/14 16:36	1

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99	64 - 135		12/16/14 16:36	1
4-Bromofluorobenzene (Surr)	96	70 - 118		12/16/14 16:36	1
Dibromofluoromethane (Surr)	102	70 - 128		12/16/14 16:36	1
Toluene-d8 (Surr)	100	71 - 118		12/16/14 16:36	1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND	0.93	0.051 ug/L		12/10/14 08:26	12/11/14 21:13	1
Surrogate	%Recovery Qualifier	Limits			Prepared	Analyzed	Dil Fac
2 4 6-Tribromonhenol	66	30 150			12/10/14 08:26	12/11/14 21:13	

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	66		30 - 150	12/10/14 08:26	12/11/14 21:13	1
2-Fluorobiphenyl	56		30 - 150	12/10/14 08:26	12/11/14 21:13	1
2-Fluorophenol	50		30 - 150	12/10/14 08:26	12/11/14 21:13	1
Nitrobenzene-d5	55		30 - 150	12/10/14 08:26	12/11/14 21:13	1
Phenol-d5	49		30 - 150	12/10/14 08:26	12/11/14 21:13	1
Terphenyl-d14	44		10 - 150	12/10/14 08:26	12/11/14 21:13	1

Method: 300.0 - Anions	s, Ion Chromatography

Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	75	1.0	0.21 mg/L			12/22/14 15:57	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	12	J	50	5.0	ug/L		12/05/14 10:51	12/08/14 16:26	1

Method: In-House - Sulfonic Acids by I CMS/MS

Method: In-House - Sulfonic Acids	Dy LUNIS/INI	•							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	81		50	18	ug/L		12/09/14 15:47	12/10/14 19:17	10
p-Phenolsulfonic acid	ND		50	8.4	ug/L		12/09/14 15:47	12/10/14 19:17	10
Benzenesulfonic acid	ND		50	7.0	ug/L		12/09/14 15:47	12/10/14 19:17	10
Resorcinol	ND		50	5.9	ug/L		12/09/14 15:47	12/10/14 19:17	10
2,3',4-Trihydroxydiphenyl	ND		50	16	ug/L		12/09/14 15:47	12/10/14 19:17	10

Client Sample ID: SW-2_LANGAN

Lab Sample ID: 180-39575-19 Date Collected: 12/04/14 13:10 **Matrix: Water**

Date Received: 12/05/14 18:40

Method: 8260C - Volatile Organic Compounds (GC/MS)

Method: 82600 - Volatile Organic Co	ompounas (GC/NS)							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 17:00	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 17:00	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 17:00	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 17:00	1
	Analyte 1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane 1,1,2-Trichloro-1,2,2-trifluoroethane	Analyte Result 1,1,1-Trichloroethane ND 1,1,2,2-Tetrachloroethane ND 1,1,2-Trichloro-1,2,2-trifluoroethane ND	1,1,1-Trichloroethane ND 1,1,2,2-Tetrachloroethane ND 1,1,2-Trichloro-1,2,2-trifluoroethane ND	Analyte Result 1,1,1-Trichloroethane Qualifier RL 1,1,1-Trichloroethane ND 1.0 1,1,2,2-Tetrachloroethane ND 1.0 1,1,2-Trichloro-1,2,2-trifluoroethane ND 1.0	Analyte Result 1,1,1-Trichloroethane Qualifier RL MDL 1,1,1-Trichloroethane ND 1.0 0.29 1,1,2,2-Tetrachloroethane ND 1.0 0.20 1,1,2-Trichloro-1,2,2-trifluoroethane ND 1.0 0.32	Analyte Result 1,1,1-Trichloroethane Qualifier RL ND Unit Unit Unit Unit Unit Unit Unit Unit	Analyte Result 1,1,1-Trichloroethane Qualifier RL ND MDL Unit Unit Unit Unit Unit Unit Unit Unit	Analyte Result 1,1,1-Trichloroethane Qualifier RL MDL Unit D Prepared 1,1,1-Trichloroethane ND 1.0 0.29 ug/L ug/L 1,1,2,2-Tetrachloroethane ND 1.0 0.20 ug/L 1,1,2-Trichloro-1,2,2-trifluoroethane ND 1.0 0.32 ug/L	Analyte Result Qualifier RL ND Lunit Unit D Prepared Analyzed 1,1,1-Trichloroethane ND N

TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-19

TestAmerica Job ID: 180-39575-1

cample ib. 100 00070 10

Matrix: Water

Client Sample ID: SW-2_LANGAN

Date Collected: 12/04/14 13:10 Date Received: 12/05/14 18:40

Method: 8260C - Volatile Orga Analyte		Qualifier RI	L MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND	1.0	0.12	ug/L		•	12/16/14 17:00	1
1,1-Dichloroethene	ND	1.0		ug/L			12/16/14 17:00	1
1,2,4-Trichlorobenzene	ND	1.0		ug/L			12/16/14 17:00	1
1,2-Dibromo-3-Chloropropane	ND	1.0		ug/L			12/16/14 17:00	1
1,2-Dichlorobenzene	ND	1.0		ug/L			12/16/14 17:00	1
1,2-Dichloroethane	ND	1.0		ug/L			12/16/14 17:00	1
1,2-Dichloropropane	ND	1.0		-			12/16/14 17:00	1
1,3-Dichlorobenzene	ND	1.0		ug/L			12/16/14 17:00	1
1.4-Dichlorobenzene	ND	1.0		ug/L			12/16/14 17:00	1
2-Butanone (MEK)	ND	5.0		ug/L			12/16/14 17:00	1
2-Hexanone	ND	5.0		ug/L			12/16/14 17:00	1
4-Methyl-2-pentanone (MIBK)	ND	5.0		ug/L			12/16/14 17:00	
Acetone	ND	5.0		ug/L			12/16/14 17:00	1
Benzene	ND	1.0		ug/L			12/16/14 17:00	1
Bromoform	ND	1.0		ug/L			12/16/14 17:00	· · · · · · · · · · · 1
Bromomethane	ND ND	1.0		ug/L			12/16/14 17:00	1
Carbon disulfide	ND ND	1.0		ug/L			12/16/14 17:00	1
Carbon tetrachloride	ND	1.0		ug/L			12/16/14 17:00	
Chlorobenzene	ND ND	1.0		ug/L ug/L			12/16/14 17:00	1
Chlorodibromomethane	ND ND	1.0		ug/L ug/L			12/16/14 17:00	1
Chloroethane							12/16/14 17:00	
Chloroform	ND ND	1.0 1.0		ug/L ug/L			12/16/14 17:00	1
Chloromethane	ND ND						12/16/14 17:00	
		1.0		ug/L				1
cis-1,2-Dichloroethene	ND	1.0		ug/L			12/16/14 17:00	1
cis-1,3-Dichloropropene	ND	1.0		ug/L			12/16/14 17:00	1
Cyclohexane	ND	1.0		ug/L			12/16/14 17:00	1
Dichlorobromomethane	ND	1.0		ug/L			12/16/14 17:00	1
Dichlorodifluoromethane	ND	1.0		ug/L			12/16/14 17:00	1
Ethyl ether	ND	1.0					12/16/14 17:00	1
Ethylbenzene	ND	1.0		ug/L			12/16/14 17:00	1
1,2-Dibromoethane	ND	1.0		ug/L			12/16/14 17:00	1
Isopropylbenzene	ND	1.0		ug/L			12/16/14 17:00	1
Methyl acetate	ND	1.0		ug/L			12/16/14 17:00	1
Methyl tert-butyl ether	ND	1,0		ug/L			12/16/14 17:00	1
Methylcyclohexane	ND	1,1		ug/L			12/16/14 17:00	
Methylene Chloride	ND	1.0		ug/L			12/16/14 17:00	1
Styrene	ND	1,0					12/16/14 17:00	1
Tetrachloroethene	ND	1.0		ug/L			12/16/14 17:00	
Toluene	ND	1.0		ug/L			12/16/14 17:00	1
trans-1,2-Dichloroethene	ND	1.0		ug/L			12/16/14 17:00	1
trans-1,3-Dichloropropene	ND	1.0		ug/L			12/16/14 17:00	1
Trichloroethene	ND	1.0		ug/L			12/16/14 17:00	1
Trichlorofluoromethane	ND	1.0		ug/L			12/16/14 17:00	1
Vinyl chloride	ND	1.0	0.23	ug/L			12/16/14 17:00	1
Surrogate	%Recovery		_		_	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98	64 - 135					12/16/14 17:00	1
4-Bromofluorobenzene (Surr)	94	70 - 118					12/16/14 17:00	1
Dibromofluoromethane (Surr)	104	70 - 128					12/16/14 17:00	
Toluene-d8 (Surr)	98	71 - 118					12/16/14 17:00	1

TestAmerica Pittsburgh

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13

Client: ARCADIS U.S. Inc

Resorcinol

2,3',4-Trihydroxydiphenyl

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-2_LANGAN Lab Sample ID: 180-39575-19

Date Collected: 12/04/14 13:10 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/10/14 08:26	12/11/14 21:37	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
2,4,6-Tribromophenol	74		30 - 150				12/10/14 08:26	12/11/14 21:37	-
2-Fluorobiphenyl	64		30 - 150				12/10/14 08:26	12/11/14 21:37	1
2-Fluorophenol	52		30 - 150				12/10/14 08:26	12/11/14 21:37	
Nitrobenzene-d5	59		30 - 150				12/10/14 08:26	12/11/14 21:37	
Phenol-d5	54		30 - 150				12/10/14 08:26	12/11/14 21:37	
Terphenyl-d14	68		10 - 150				12/10/14 08:26	12/11/14 21:37	
· · · · · · · · · · · · · · · · · · ·	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Method: 300.0 - Anions, Ion C Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	•	Qualifier	RL	MDL 0.21	Unit mg/L	<u>D</u>	Prepared	Analyzed 12/22/14 16:49	Dil Fac
Analyte Sulfate Method: 8315A - Carbonyl Co	Result 75		1.0	0.21	mg/L			12/22/14 16:49	
Analyte Sulfate Method: 8315A - Carbonyl Co Analyte	Result 75 pmpounds (HPLC) Result	Qualifier	1.0	0.21 MDL	mg/L Unit	D	Prepared	12/22/14 16:49 Analyzed	
Analyte Sulfate Method: 8315A - Carbonyl Co	Result 75	Qualifier	1.0	0.21 MDL	mg/L			12/22/14 16:49	
Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde	Result 75 mpounds (HPLC) Result 14	Qualifier J	1.0	0.21 MDL	mg/L Unit		Prepared	12/22/14 16:49 Analyzed	
Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde Method: In-House - Sulfonic A	mpounds (HPLC) Result 14 Acids by LCMS/MS	Qualifier J	1.0	0.21 MDL	mg/L Unit ug/L		Prepared	12/22/14 16:49 Analyzed	Dil Fac
Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde Method: In-House - Sulfonic A Analyte	mpounds (HPLC) Result 14 Acids by LCMS/MS	Qualifier J	1.0 RL 50	0.21 MDL 5.0	mg/L Unit ug/L	<u>D</u>	Prepared 12/05/14 10:51	12/22/14 16:49 Analyzed 12/08/14 16:38	Dil Fac
Analyte Sulfate Method: 8315A - Carbonyl Co Analyte	Result 75 mpounds (HPLC) Result 14 Acids by LCMS/MS Result	Qualifier J	1.0 RL 50	0.21 MDL 5.0	mg/L Unit ug/L Unit	<u>D</u>	Prepared 12/05/14 10:51	12/22/14 16:49 Analyzed 12/08/14 16:38 Analyzed	Dil Fac

Client Sample ID: SW-1_LANGAN Lab Sample ID: 180-39575-20

50

50

5.9 ug/L

16 ug/L

12/09/14 15:47

12/09/14 15:47

ND

ND

Date Collected: 12/04/14 13:20 Matrix: Water Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 17:24	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 17:24	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 17:24	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 17:24	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 17:24	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 17:24	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 17:24	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 17:24	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			12/16/14 17:24	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 17:24	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 17:24	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 17:24	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 17:24	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 17:24	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 17:24	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 17:24	1
Acetone	ND		5.0	2.5	ug/L			12/16/14 17:24	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 17:24	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 17:24	1

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TestAmerica Job ID: 180-39575-1

10

10

12/10/14 19:50

12/10/14 19:50

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-20

TestAmerica Job ID: 180-39575-1

Matrix: Water

Client Sample ID: SW-1_LANGAN Date Collected: 12/04/14 13:20

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 17:24	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 17:24	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 17:24	1
Chlorobenzene	ND		1.0	0.14	ug/L			12/16/14 17:24	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 17:24	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 17:24	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 17:24	1
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 17:24	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 17:24	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 17:24	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 17:24	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 17:24	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 17:24	1
Ethyl ether	ND		1.0	0.082	ug/L			12/16/14 17:24	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 17:24	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 17:24	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 17:24	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 17:24	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 17:24	1
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 17:24	1
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 17:24	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 17:24	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 17:24	1
Toluene	ND		1.0	0.15	ug/L			12/16/14 17:24	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 17:24	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 17:24	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 17:24	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 17:24	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 17:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		64 - 135			-		12/16/14 17:24	1
4-Bromofluorobenzene (Surr)	103		70 - 118					12/16/14 17:24	1
Dibromofluoromethane (Surr)	106		70 - 128					12/16/14 17:24	1
Toluene-d8 (Surr)	105		71 - 118					12/16/14 17:24	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/10/14 08:26	12/11/14 22:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	96		30 - 150				12/10/14 08:26	12/11/14 22:01	1
2-Fluorobiphenyl	89		30 - 150				12/10/14 08:26	12/11/14 22:01	1
2-Fluorophenol	67		30 - 150				12/10/14 08:26	12/11/14 22:01	1
Nitrobenzene-d5	78		30 _ 150				12/10/14 08:26	12/11/14 22:01	1
Phenol-d5	70		30 - 150				12/10/14 08:26	12/11/14 22:01	1
Terphenyl-d14	81		10 - 150				12/10/14 08:26	12/11/14 22:01	1

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-20

TestAmerica Job ID: 180-39575-1

Matrix: Water

Client Sample ID: SW-1_LANGAN

Date Collected: 12/04/14 13:20 Date Received: 12/05/14 18:40

Method: 300.0 - Anions, Ion Chrom	natography								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	75		1.0	0.21	mg/L			12/22/14 17:06	1
Г., .,									

Method: 8315A - Carbonyl Compo	ounds (HPLC)						
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	13 J	50	5.0 ug/L		12/05/14 10:51	12/08/14 16:50	1

Analyte	Result C	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	81		50	18	ug/L		12/09/14 15:47	12/10/14 20:12	10
p-Phenolsulfonic acid	ND		50	8.4	ug/L		12/09/14 15:47	12/10/14 20:12	10
Benzenesulfonic acid	ND		50	7.0	ug/L		12/09/14 15:47	12/10/14 20:12	10
Resorcinol	ND		50	5.9	ug/L		12/09/14 15:47	12/10/14 20:12	10
2,3',4-Trihydroxydiphenyl	ND		50	16	ug/L		12/09/14 15:47	12/10/14 20:12	10

Lab Sample ID: 180-39575-21 Client Sample ID: FB120414

Date Collected: 12/04/14 14:40 Matrix: Water

Method: 8260C - Volatile Organic Analyte	•	(GC/MS) Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L	— <u> </u>		12/16/14 13:08	
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 13:08	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 13:08	
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 13:08	,
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 13:08	
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 13:08	
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 13:08	
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 13:08	
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			12/16/14 13:08	
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 13:08	
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 13:08	
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 13:08	
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 13:08	
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 13:08	
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 13:08	
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 13:08	,
Acetone	ND		5.0	2.5	ug/L			12/16/14 13:08	•
Benzene	ND		1.0	0.11	ug/L			12/16/14 13:08	•
Bromoform	ND		1.0	0.19	ug/L			12/16/14 13:08	,
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 13:08	•
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 13:08	
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 13:08	
Chlorobenzene	ND		1.0	0.14	ug/L			12/16/14 13:08	•
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 13:08	•
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 13:08	
Chloroform	ND		1.0	0.17	ug/L			12/16/14 13:08	•
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 13:08	•
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 13:08	
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 13:08	•
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 13:08	

TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-21

TestAmerica Job ID: 180-39575-1

Matrix: Water

Client Sample ID: FB120414 Date Collected: 12/04/14 14:40

Date Received: 12/05/14 18:40

Analyte

Sulfate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 13:08	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 13:08	1
Ethyl ether	ND		1.0	0.082	ug/L			12/16/14 13:08	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 13:08	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 13:08	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 13:08	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 13:08	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 13:08	1
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 13:08	1
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 13:08	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 13:08	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 13:08	1
Toluene	ND		1.0	0.15	ug/L			12/16/14 13:08	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 13:08	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 13:08	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 13:08	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 13:08	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 13:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		64 - 135			_		12/16/14 13:08	1
4-Bromofluorobenzene (Surr)	112		70 - 118					12/16/14 13:08	1
Dibromofluoromethane (Surr)	102		70 - 128					12/16/14 13:08	1
Toluene-d8 (Surr)	101		71 - 118					12/16/14 13:08	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.96	0.053	ug/L		12/10/14 08:26	12/11/14 22:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	65		30 - 150				12/10/14 08:26	12/11/14 22:25	1
2-Fluorobiphenyl	49		30 - 150				12/10/14 08:26	12/11/14 22:25	1
2-Fluorophenol	40		30 - 150				12/10/14 08:26	12/11/14 22:25	1
Nitrobenzene-d5	48		30 - 150				12/10/14 08:26	12/11/14 22:25	1
Phenol-d5	41		30 - 150				12/10/14 08:26	12/11/14 22:25	1
Terphenyl-d14	66		10 - 150				12/10/14 08:26	12/11/14 22:25	1

Method: 8315A - Carbonyl Compo	unds (HPLC)						
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	5.0 J	50	5.0 ug/L		12/05/14 10:51	12/08/14 17:01	1

RL

1.0

MDL Unit

0.21 mg/L

Prepared

Result Qualifier

ND

Method: In-House - Sulfonic A	Method: In-House - Sulfonic Acids by LCMS/MS										
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac			
m-Benzenedisulfonic acid	ND ND	50	18	ug/L		12/09/14 15:47	12/10/14 20:34	10			
p-Phenolsulfonic acid	ND	50	8.4	ug/L		12/09/14 15:47	12/10/14 20:34	10			
Benzenesulfonic acid	ND	50	7.0	ug/L		12/09/14 15:47	12/10/14 20:34	10			
Resorcinol	ND	50	5.9	ug/L		12/09/14 15:47	12/10/14 20:34	10			

TestAmerica Pittsburgh

Analyzed

12/22/14 17:23

Dil Fac

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6

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10

12

13

Client Sample Results

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Client Sample ID: FB120414

Lab Sample ID: 180-39575-21 Date Collected: 12/04/14 14:40

Matrix: Water

Date Received: 12/05/14 18:40

Method: In-House - Sulfonic Acids	by LCMS/MS (Continued)						
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
2,3',4-Trihydroxydiphenyl	ND —	50	16 ug/L		12/09/14 15:47	12/10/14 20:34	10

Client Sample ID: TRIP BLANK Lab Sample ID: 180-39575-22

Matrix: Water

Date Collected: 12/04/14 00:00 Date Received: 12/05/14 18:40

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			12/15/14 14:07	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			12/15/14 14:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			12/15/14 14:07	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			12/15/14 14:07	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			12/15/14 14:07	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			12/15/14 14:07	1
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			12/15/14 14:07	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			12/15/14 14:07	1
1,2-Dichlorobenzene	ND	1.0	0.15	ug/L			12/15/14 14:07	1
1,2-Dichloroethane	ND	1.0	0.21	ug/L			12/15/14 14:07	1
1,2-Dichloropropane	ND	1.0	0.095	ug/L			12/15/14 14:07	1
1,3-Dichlorobenzene	ND	1.0	0.11	ug/L			12/15/14 14:07	1
1,4-Dichlorobenzene	ND	1.0	0.21	ug/L			12/15/14 14:07	1
2-Butanone (MEK)	ND	5.0	0.55	ug/L			12/15/14 14:07	1
2-Hexanone	ND	5.0	0.16	ug/L			12/15/14 14:07	1
4-Methyl-2-pentanone (MIBK)	ND	5.0	0.53	ug/L			12/15/14 14:07	1
Acetone	ND	5.0	2.5	ug/L			12/15/14 14:07	1
Benzene	ND	1.0	0.11	ug/L			12/15/14 14:07	1
Bromoform	ND	1.0	0.19	ug/L			12/15/14 14:07	1
Bromomethane	ND	1.0	0.31	ug/L			12/15/14 14:07	1
Carbon disulfide	ND	1.0	0.21				12/15/14 14:07	1
Carbon tetrachloride	ND	1.0	0.14	ug/L			12/15/14 14:07	1
Chlorobenzene	ND	1.0	0.14	ug/L			12/15/14 14:07	1
Chlorodibromomethane	ND	1.0	0.14	ug/L			12/15/14 14:07	1
Chloroethane	ND	1.0	0.21	ug/L			12/15/14 14:07	1
Chloroform	ND	1.0	0.17				12/15/14 14:07	1
Chloromethane	0.39 J	1.0		ug/L			12/15/14 14:07	1
cis-1,2-Dichloroethene	ND	1.0		ug/L			12/15/14 14:07	1
cis-1,3-Dichloropropene	ND	1.0	0.19	_			12/15/14 14:07	1
Cyclohexane	ND	1.0		ug/L			12/15/14 14:07	1
Dichlorobromomethane	ND	1.0	0.13	ug/L			12/15/14 14:07	1
Dichlorodifluoromethane	ND	1.0		ug/L			12/15/14 14:07	1
Ethyl ether	ND	1.0	0.082	-			12/15/14 14:07	1
Ethylbenzene	ND	1.0		ug/L			12/15/14 14:07	1
1,2-Dibromoethane	ND	1.0		ug/L			12/15/14 14:07	1
Isopropylbenzene	ND	1.0		ug/L			12/15/14 14:07	1
Methyl acetate	ND	1.0		ug/L			12/15/14 14:07	1
Methyl tert-butyl ether	ND	1.0		ug/L			12/15/14 14:07	1
Methylcyclohexane	ND	1.0		ug/L			12/15/14 14:07	1
Methylene Chloride	0.63 J	1.0		ug/L			12/15/14 14:07	1
Styrene	ND	1.0	0.097				12/15/14 14:07	1
Tetrachloroethene	ND	1.0		ug/L			12/15/14 14:07	1

TestAmerica Pittsburgh

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Client Sample Results

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 180-39575-22 Date Collected: 12/04/14 00:00

Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0	0.15	ug/L			12/15/14 14:07	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/15/14 14:07	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/15/14 14:07	1
Trichloroethene	ND		1.0	0.14	ug/L			12/15/14 14:07	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/15/14 14:07	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/15/14 14:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		64 - 135			-		12/15/14 14:07	1
4-Bromofluorobenzene (Surr)	100		70 - 118					12/15/14 14:07	1
Dibromofluoromethane (Surr)	108		70 - 128					12/15/14 14:07	1
Toluene-d8 (Surr)	101		71 - 118					12/15/14 14:07	1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-127772/1-A

Matrix: Solid

Analysis Batch: 127750

Client Sample ID: Method Blank Prep Type: Total/NA

Prep Batch: 127772

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.49	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.72	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	1.1	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
1,1,2-Trichloroethane	ND		5.0	0.83	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
1,1-Dichloroethane	ND		5.0	0.58	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
1,1-Dichloroethene	ND		5.0	0.85	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
1,2,4-Trichlorobenzene	ND		5.0	0.88	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.75	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
1,2-Dichlorobenzene	ND		5.0	0.80	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
1,2-Dichloroethane	ND		5.0	0.61	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
1,2-Dichloropropane	ND		5.0	0.54	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
1,3-Dichlorobenzene	ND		5.0	0.66	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
1,4-Dichlorobenzene	ND		5.0	0.64	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
2-Butanone (MEK)	ND		5.0	0.88	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
2-Hexanone	ND		5.0	0.69	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.65			12/10/14 05:05	12/10/14 06:45	1
Acetone	ND		20	5.0	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Benzene	ND		5.0	0.68			12/10/14 05:05	12/10/14 06:45	1
Bromoform	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Bromomethane	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Carbon disulfide	ND		5.0	0.51	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Carbon tetrachloride	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Chlorobenzene	ND		5.0				12/10/14 05:05	12/10/14 06:45	1
Chlorodibromomethane	ND		5.0	0.71	ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Chloroethane	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Chloroform	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Chloromethane	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	1
cis-1,2-Dichloroethene	ND		5.0				12/10/14 05:05	12/10/14 06:45	
cis-1,3-Dichloropropene	ND		5.0				12/10/14 05:05	12/10/14 06:45	1
Cyclohexane	ND		5.0	0.37			12/10/14 05:05	12/10/14 06:45	1
Dichlorobromomethane	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	· · · · · · · · · · · · · · · · · · ·
Dichlorodifluoromethane	ND		5.0	0.67			12/10/14 05:05	12/10/14 06:45	1
Ethyl ether	ND ND		5.0	0.59			12/10/14 05:05	12/10/14 06:45	1
Ethylbenzene	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	
1,2-Dibromoethane	ND		5.0		ug/Kg ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Isopropylbenzene	ND ND		5.0		ug/Kg ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Methyl test but dether	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Methyl tert-butyl ether	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	-
Methylcyclohexane	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	
Methylene Chloride	8.87		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Styrene	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Tetrachloroethene	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	
Toluene	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	1
trans-1,2-Dichloroethene	ND		5.0				12/10/14 05:05	12/10/14 06:45	1
trans-1,3-Dichloropropene	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	
Trichloroethene	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Trichlorofluoromethane	ND		5.0		ug/Kg		12/10/14 05:05	12/10/14 06:45	1
Vinyl chloride	ND		5.0	0.47	ug/Kg		12/10/14 05:05	12/10/14 06:45	1

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-127772/1-A

Matrix: Solid

Analysis Batch: 127750

Client Sample ID: Method Blank Prep Type: Total/NA

Prep Batch: 127772

	IND	IVID				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		52 - 124	12/10/14 05:05	12/10/14 06:45	1
4-Bromofluorobenzene (Surr)	86		63 - 120	12/10/14 05:05	12/10/14 06:45	1
Dibromofluoromethane (Surr)	88		68 - 121	12/10/14 05:05	12/10/14 06:45	1
Toluene-d8 (Surr)	94		72 - 127	12/10/14 05:05	12/10/14 06:45	1
	1,2-Dichloroethane-d4 (Surr) 4-Bromofluorobenzene (Surr) Dibromofluoromethane (Surr)	1,2-Dichloroethane-d4 (Surr) 81 4-Bromofluorobenzene (Surr) 86 Dibromofluoromethane (Surr) 88	1,2-Dichloroethane-d4 (Surr) 81 4-Bromofluorobenzene (Surr) 86 Dibromofluoromethane (Surr) 88	1,2-Dichloroethane-d4 (Surr) 81 52 - 124 4-Bromofluorobenzene (Surr) 86 63 - 120 Dibromofluoromethane (Surr) 88 68 - 121	1,2-Dichloroethane-d4 (Surr) 81 52 - 124 12/10/14 05:05 4-Bromofluorobenzene (Surr) 86 63 - 120 12/10/14 05:05 Dibromofluoromethane (Surr) 88 68 - 121 12/10/14 05:05	1,2-Dichloroethane-d4 (Surr) 81 52 - 124 12/10/14 05:05 12/10/14 06:45 4-Bromofluorobenzene (Surr) 86 63 - 120 12/10/14 05:05 12/10/14 06:45 Dibromofluoromethane (Surr) 88 68 - 121 12/10/14 05:05 12/10/14 06:45

Lab Sample ID: LCS 180-127772/2-A

Matrix: Solid

Analysis Batch: 127750

1,2-Dibromo-3-Chloropropane

1,2-Dichlorobenzene

1,2-Dichloroethane

1,2-Dichloropropane

1,3-Dichlorobenzene

1,4-Dichlorobenzene

Bromomethane

Client Sample ID: Lab Control Sample

104

25 _ 150

Prep Type: Total/NA

Prep Batch: 127772 %Rec.

Added Analyte Result Qualifier Unit %Rec Limits 40.2 1,1,1-Trichloroethane 40.0 ug/Kg 100 67 _ 126 1,1,2,2-Tetrachloroethane 40.0 25.2 ug/Kg 63 60 - 139 40.0 42.3 ug/Kg 106 55 - 130 1,1,2-Trichloro-1,2,2-trifluoroetha 1,1,2-Trichloroethane 40.0 31.8 ug/Kg 80 70 - 128 40.0 39.6 99 1.1-Dichloroethane ug/Kg 66 - 12440.0 95 1,1-Dichloroethene 37.9 ug/Kg 59 - 129 99 1,2,4-Trichlorobenzene

Spike

40.0 39.4 51 - 136 ug/Kg 40.0 18.5 46 35 - 136 ug/Kg 40.0 39.9 100 ug/Kg 71 - 12440.0 35.7 89 61 - 127 ug/Kg 40.0 38.5 96 ug/Kg 72 _ 122 40.0 40.8 ug/Kg 102 75 - 118 40.0 38.8 97 77 - 116 ug/Kg

41.7

LCS LCS

2-Butanone (MEK) 40.0 26.5 ug/Kg 66 35 - 149 2-Hexanone 40.0 24.4 ug/Kg 61 32 - 150 4-Methyl-2-pentanone (MIBK) 40.0 24.6 ug/Kg 62 44 - 148 Acetone 40.0 26.2 66 20 - 150 ug/Kg Benzene 40.0 38.8 ug/Kg 97 77 - 120Bromoform 40.0 23.8 ug/Kg 60 53 - 140

40.0

ug/Kg Carbon disulfide 40.0 39.8 ug/Kg 100 50 - 127 Carbon tetrachloride 40.0 36.3 91 69 - 122 ug/Kg Chlorobenzene 40.0 38.9 ug/Kg 97 79 - 120 40.0 Chlorodibromomethane 29.3 73 70 - 132 ug/Kg Chloroethane 40.0 41.9 ug/Kg 105 22 - 150 Chloroform 40.0 39.5 99 72 - 120 ug/Kg Chloromethane 40.0 41.4 ug/Kg 103 44 - 131 cis-1,2-Dichloroethene 40.0 38.0 ug/Kg 95 80 - 118

cis-1,3-Dichloropropene 40.0 33.5 ug/Kg 84 73 - 120 Cyclohexane 40.0 39.6 ug/Kg 99 64 - 130 Dichlorobromomethane 40.0 35.0 ug/Kg 88 70 - 125 Dichlorodifluoromethane 40.0 35.0 ug/Kg 88 25 - 150 Ethylbenzene 40.0 39.8 ug/Kg 100 78 - 125

40.0 30.4 70 - 131 1,2-Dibromoethane ug/Kg 76 Isopropylbenzene 40.0 40.6 ug/Kg 102 70 - 133 Methyl tert-butyl ether 40.0 29.6 ug/Kg 74 48 - 132 40.0 40.8 102 Methylcyclohexane ug/Kg 66 - 135

TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-127772/2-A

Matrix: Solid

Analysis Batch: 127750

Client Sample ID: Lab Control Sample **Prep Type: Total/NA Prep Batch: 127772**

•	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Methylene Chloride	40.0	46.7		ug/Kg		117	58 - 127	
Styrene	40.0	38.0		ug/Kg		95	83 - 129	
Tetrachloroethene	40.0	41.2		ug/Kg		103	78 ₋ 129	
Toluene	40.0	38.8		ug/Kg		97	78 - 124	
trans-1,2-Dichloroethene	40.0	40.0		ug/Kg		100	77 - 121	
trans-1,3-Dichloropropene	40.0	29.4	*	ug/Kg		73	74 - 129	
Trichloroethene	40.0	40.3		ug/Kg		101	76 ₋ 119	
Trichlorofluoromethane	40.0	55.2		ug/Kg		138	20 - 150	
Vinyl chloride	40.0	42.7		ug/Kg		107	63 - 124	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		52 - 124
4-Bromofluorobenzene (Surr)	84		63 - 120
Dibromofluoromethane (Surr)	89		68 - 121
Toluene-d8 (Surr)	92		72 - 127

Lab Sample ID: 180-39575-4 MS

Matrix: Solid

Analysis Batch: 127750

Client Sample ID: SED-102 Prep Type: Total/NA Prep Batch: 127772

Analysis Baton: 127700	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1,1-Trichloroethane	ND		54.6	57.6		ug/Kg	<u></u>	105	67 - 126
1,1,2,2-Tetrachloroethane	ND		54.6	27.6	F1	ug/Kg	₩	51	60 - 139
1,1,2-Trichloro-1,2,2-trifluoroetha	ND		54.6	56.1		ug/Kg	₩	103	55 ₋ 130
ne									
1,1,2-Trichloroethane	ND		54.6	130	F1	ug/Kg	₩	238	70 - 128
1,1-Dichloroethane	ND		54.6	57.4		ug/Kg	₽	105	66 - 124
1,1-Dichloroethene	ND		54.6	58.3		ug/Kg	₽	107	59 - 129
1,2,4-Trichlorobenzene	ND		54.6	24.4	F1	ug/Kg	\$	45	51 ₋ 136
1,2-Dibromo-3-Chloropropane	ND		54.6	29.6		ug/Kg	☼	54	35 - 136
1,2-Dichlorobenzene	3.0	J	54.6	55.6		ug/Kg	≎	96	71 - 124
1,2-Dichloroethane	ND		54.6	44.6		ug/Kg	₽	82	61 - 127
1,2-Dichloropropane	ND		54.6	47.6		ug/Kg	₽	87	72 - 122
1,3-Dichlorobenzene	ND		54.6	53.7		ug/Kg	₽	98	75 ₋ 118
1,4-Dichlorobenzene	ND		54.6	53.6		ug/Kg	₽	98	77 - 116
2-Butanone (MEK)	ND		54.6	25.0		ug/Kg	₽	46	35 - 149
2-Hexanone	ND		54.6	160	F1	ug/Kg	₩	294	32 _ 150
4-Methyl-2-pentanone (MIBK)	ND		54.6	26.6		ug/Kg	₩	49	44 - 148
Acetone	ND		54.6	30.5		ug/Kg	₩	56	20 - 150
Benzene	17		54.6	84.4	F1	ug/Kg	₩	123	77 - 120
Bromoform	ND		54.6	27.3	F1	ug/Kg		50	53 - 140
Bromomethane	ND		54.6	66.6		ug/Kg	₽	122	25 - 150
Carbon disulfide	ND		54.6	63.2		ug/Kg	≎	116	50 - 127
Carbon tetrachloride	ND		54.6	49.6		ug/Kg		91	69 - 122
Chlorobenzene	2.3	J	54.6	57.1		ug/Kg	₽	100	79 - 120
Chlorodibromomethane	ND		54.6	40.5		ug/Kg	₩	74	70 - 132
Chloroethane	ND		54.6	83.5	F1	ug/Kg		153	22 - 150
Chloroform	ND		54.6	55.0		ug/Kg	₽	101	72 - 120

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Client: ARCADIS U.S. Inc Project/Site: INDSPEC, Petrolia PA

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-39575-4 MS

Matrix: Solid

Analysis Batch: 127750

Client Sample ID: SED-102 **Prep Type: Total/NA**

Prep Batch: 127772

	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Chloromethane	ND		54.6	70.5		ug/Kg	₩	129	44 - 131
cis-1,2-Dichloroethene	ND		54.6	56.4		ug/Kg	₩.	103	80 - 118
cis-1,3-Dichloropropene	ND		54.6	41.4		ug/Kg	₩	76	73 - 120
Cyclohexane	11		54.6	79.5		ug/Kg	₩	125	64 - 130
Dichlorobromomethane	ND		54.6	43.9		ug/Kg	₩.	81	70 - 125
Dichlorodifluoromethane	ND		54.6	54.8		ug/Kg	₩	100	25 - 150
Ethylbenzene	3.1	J	54.6	59.8		ug/Kg	₩	104	78 ₋ 125
1,2-Dibromoethane	ND		54.6	39.0		ug/Kg	₩	72	70 - 131
Isopropylbenzene	2.0	J	54.6	54.2		ug/Kg	₩	96	70 - 133
Methyl tert-butyl ether	ND		54.6	35.3		ug/Kg	₩	65	48 - 132
Methylcyclohexane	48		54.6	163	F1	ug/Kg	₩	210	66 - 135
Methylene Chloride	4.6	JB	54.6	51.9		ug/Kg	₩	87	58 ₋ 127
Styrene	ND		54.6	46.9		ug/Kg	₩	86	83 - 129
Tetrachloroethene	ND		54.6	59.8		ug/Kg	₩	110	78 ₋ 129
Toluene	ND		54.6	60.4		ug/Kg	₩	111	78 ₋ 124
trans-1,2-Dichloroethene	ND		54.6	61.2		ug/Kg	₩	112	77 - 121
trans-1,3-Dichloropropene	ND	*	54.6	40.6		ug/Kg	₩	74	74 ₋ 129
Trichloroethene	ND		54.6	53.5		ug/Kg	₩	98	76 ₋ 119
Trichlorofluoromethane	ND		54.6	86.5	F1	ug/Kg	₩	159	20 - 150
Vinyl chloride	ND		54.6	71.2	F1	ug/Kg		131	63 _ 124

MS MS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	76		52 - 124
4-Bromofluorobenzene (Surr)	84		63 - 120
Dibromofluoromethane (Surr)	91		68 - 121
Toluene-d8 (Surr)	113		72 - 127

Lab Sample ID: 180-39575-4 MSD

Matrix: Solid

Analysis Batch: 127750

Client Sample ID: SED-102 Prep Type: Total/NA

Prep Batch: 127772

								riepi	Jaicii. I	21112
Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
ND		54.6	57.5		ug/Kg	\$	105	67 - 126		31
ND		54.6	28.9	F1	ug/Kg	₩	53	60 - 139	5	24
ND		54.6	56.1		ug/Kg	₽	103	55 - 130	0	37
ND		54.6	152	F1	ug/Kg	₽	279	70 - 128	16	22
ND		54.6	58.0		ug/Kg	₩	106	66 - 124	1	23
ND		54.6	61.3		ug/Kg	₩	112	59 - 129	5	25
ND		54.6	28.6		ug/Kg	₽	52	51 - 136	16	40
ND		54.6	27.8		ug/Kg	₽	51	35 - 136	6	40
3.0	J	54.6	57.3		ug/Kg	₽	99	71 - 124	3	22
ND		54.6	46.3		ug/Kg	\$	85	61 - 127	4	23
ND		54.6	48.4		ug/Kg	₽	89	72 - 122	2	20
ND		54.6	55.4		ug/Kg	₽	102	75 - 118	3	20
ND		54.6	55.2		ug/Kg	₩.	101	77 - 116	3	20
ND		54.6	28.8		ug/Kg	₩	53	35 - 149	14	36
ND		54.6	186	F1	ug/Kg	₽	341	32 - 150	15	32
	Result ND	ND N	Result Qualifier Added ND 54.6 ND 54.6	Result Qualifier Added Result ND 54.6 57.5 ND 54.6 28.9 ND 54.6 56.1 ND 54.6 152 ND 54.6 61.3 ND 54.6 28.6 ND 54.6 27.8 3.0 J 54.6 57.3 ND 54.6 46.3 ND 54.6 48.4 ND 54.6 55.4 ND 54.6 55.2 ND 54.6 28.8	Result Qualifier Added Result Qualifier ND 54.6 57.5 57.5 ND 54.6 28.9 F1 ND 54.6 56.1 ND 54.6 58.0 ND 54.6 61.3 ND 54.6 28.6 ND 54.6 27.8 3.0 J 54.6 57.3 ND 54.6 46.3 ND 54.6 48.4 ND 54.6 55.4 ND 54.6 55.2 ND 54.6 28.8	Result Qualifier Added Result Qualifier Unit ND 54.6 57.5 ug/Kg ND 54.6 28.9 F1 ug/Kg ND 54.6 56.1 ug/Kg ND 54.6 58.0 ug/Kg ND 54.6 58.0 ug/Kg ND 54.6 61.3 ug/Kg ND 54.6 28.6 ug/Kg ND 54.6 27.8 ug/Kg ND 54.6 57.3 ug/Kg ND 54.6 46.3 ug/Kg ND 54.6 48.4 ug/Kg ND 54.6 55.4 ug/Kg ND 54.6 55.2 ug/Kg ND 54.6 28.8 ug/Kg	Result Qualifier Added Result Qualifier Unit D ND 54.6 57.5 ug/Kg 3 ND 54.6 28.9 F1 ug/Kg 3 ND 54.6 56.1 ug/Kg 3 ND 54.6 58.0 ug/Kg 3 ND 54.6 61.3 ug/Kg 3 ND 54.6 28.6 ug/Kg 3 ND 54.6 27.8 ug/Kg 3 ND 54.6 57.3 ug/Kg 3 ND 54.6 46.3 ug/Kg 3 ND 54.6 48.4 ug/Kg 3 ND 54.6 55.4 ug/Kg 3 ND 54.6 55.2 ug/Kg 3 ND 54.6 55.2 ug/Kg 3 ND 54.6 28.8 ug/Kg 3	Result Qualifier Added Result Qualifier Unit D %Rec ND 54.6 57.5 ug/Kg 305 ND 54.6 28.9 F1 ug/Kg 53 ND 54.6 56.1 ug/Kg 279 ND 54.6 58.0 ug/Kg 106 ND 54.6 61.3 ug/Kg 112 ND 54.6 28.6 ug/Kg 52 ND 54.6 27.8 ug/Kg 51 3.0 J 54.6 57.3 ug/Kg 99 ND 54.6 46.3 ug/Kg 85 ND 54.6 48.4 ug/Kg 89 ND 54.6 55.4 ug/Kg 102 ND 54.6 55.2 ug/Kg 101 ND 54.6 28.8 ug/Kg 53	Sample Result Sample Qualifier Added Added Result Result Qualifier Unit Unit Unit Unit Unit Unit Unit Unit	Result ND Qualifier Added S4.6 Result S57.5 Qualifier Unit Ug/Kg D %Rec Walk Limits RPD ND 54.6 57.5 ug/Kg \$ 105 67 - 126 0 ND 54.6 28.9 F1 ug/Kg \$ 53 60 - 139 5 ND 54.6 56.1 ug/Kg \$ 103 55 - 130 0 ND 54.6 152 F1 ug/Kg \$ 279 70 - 128 16 ND 54.6 58.0 ug/Kg \$ 106 66 - 124 1 ND 54.6 61.3 ug/Kg \$ 112 59 - 129 5 ND 54.6 28.6 ug/Kg \$ 52 51 - 136 16 ND 54.6 27.8 ug/Kg \$ 51 35 - 136 6 3.0 J 54.6 57.3 ug/Kg \$ 99 71 - 124 3 ND 54.6 48.4 ug/Kg \$ 89 72 - 122 2 <

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Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-39575-4 MSD

Matrix: Solid

Analysis Batch: 127750

Client Sample ID: SED-102 **Prep Type: Total/NA**

Prep Batch: 127772

7 maryolo Zatom 12.100	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
4-Methyl-2-pentanone (MIBK)	ND		54.6	31.9		ug/Kg	<u></u>	59	44 - 148	18	30
Acetone	ND		54.6	32.4		ug/Kg		59	20 _ 150	6	40
Benzene	17		54.6	92.0	F1	ug/Kg	₽	137	77 - 120	9	20
Bromoform	ND		54.6	29.3		ug/Kg	₽	54	53 - 140	7	23
Bromomethane	ND		54.6	67.5		ug/Kg	₽	124	25 - 150	1	40
Carbon disulfide	ND		54.6	62.8		ug/Kg	₽	115	50 - 127	1	23
Carbon tetrachloride	ND		54.6	49.9		ug/Kg		91	69 - 122	1	22
Chlorobenzene	2.3	J	54.6	59.2		ug/Kg	₽	104	79 - 120	4	20
Chlorodibromomethane	ND		54.6	42.0		ug/Kg	₽	77	70 - 132	4	20
Chloroethane	ND		54.6	57.7		ug/Kg		106	22 _ 150	37	40
Chloroform	ND		54.6	55.6		ug/Kg	₽	102	72 - 120	1	25
Chloromethane	ND		54.6	65.2		ug/Kg	₽	119	44 - 131	8	27
cis-1,2-Dichloroethene	ND		54.6	54.9		ug/Kg	₽	101	80 - 118	3	20
cis-1,3-Dichloropropene	ND		54.6	41.4		ug/Kg	₽	76	73 - 120	0	20
Cyclohexane	11		54.6	92.0	F1	ug/Kg	₽	149	64 - 130	15	21
Dichlorobromomethane	ND		54.6	45.5		ug/Kg	\$	83	70 - 125	3	21
Dichlorodifluoromethane	ND		54.6	56.4		ug/Kg	≎	103	25 - 150	3	34
Ethylbenzene	3.1	J	54.6	61.4		ug/Kg	₽	107	78 - 125	3	21
1,2-Dibromoethane	ND		54.6	40.4		ug/Kg	₽	74	70 - 131	4	20
Isopropylbenzene	2.0	J	54.6	56.2		ug/Kg	₩	99	70 - 133	4	22
Methyl tert-butyl ether	ND		54.6	36.6		ug/Kg	≎	67	48 - 132	4	36
Methylcyclohexane	48		54.6	201	F1	ug/Kg	₩	280	66 - 135	21	23
Methylene Chloride	4.6	JB	54.6	59.7		ug/Kg	≎	101	58 - 127	14	28
Styrene	ND		54.6	50.5		ug/Kg	≎	93	83 - 129	7	20
Tetrachloroethene	ND		54.6	62.5		ug/Kg	₽	115	78 - 129	4	20
Toluene	ND		54.6	60.6		ug/Kg	≎	111	78 - 124	0	21
trans-1,2-Dichloroethene	ND		54.6	60.6		ug/Kg	☼	111	77 - 121	1	20
trans-1,3-Dichloropropene	ND	*	54.6	43.5		ug/Kg	\$	80	74 - 129	7	20
Trichloroethene	ND		54.6	54.4		ug/Kg	☼	100	76 - 119	2	21
Trichlorofluoromethane	ND		54.6	87.0	F1	ug/Kg	☼	159	20 - 150	1	40
Vinyl chloride	ND		54.6	72.3	F1	ug/Kg	₩	132	63 - 124	1	27

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	74		52 - 124
4-Bromofluorobenzene (Surr)	87		63 - 120
Dibromofluoromethane (Surr)	89		68 - 121
Toluene-d8 (Surr)	116		72 - 127

Method: 8260C - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-128326/7

Matrix: Water

Analysis Batch: 128326

Client Sample ID: Method Blank

Prep Type: Total/NA

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/15/14 13:06	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/15/14 13:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/15/14 13:06	1

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RL

1.0

MDL Unit

0.20 ug/L

D

Prepared

TestAmerica Job ID: 180-39575-1

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

MB MB Result Qualifier

ND

Lab Sample ID: MB 180-128326/7

Matrix: Water

1,1,2-Trichloroethane

cis-1,3-Dichloropropene

Dichlorobromomethane

Dichlorodifluoromethane

trans-1,3-Dichloropropene

Cyclohexane

Ethyl ether

Ethylbenzene

Analyte

Analysis Batch: 128326

Client Sample ID: Method Blank Prep Type: Total/NA

12/15/14 13:06

12/15/14 13:06

12/15/14 13:06

12/15/14 13:06

12/15/14 13:06

12/15/14 13:06 12/15/14 13:06

12/15/14 13:06

Analyzed 12/15/14 13:06

Prepared

Dil Fac Analyzed

1,1-Dichloroethane	ND	1.0	0.12 ug/L	12/15/14 13:06	1
1,1-Dichloroethene	ND	1.0	0.30 ug/L	12/15/14 13:06	1
1,2,4-Trichlorobenzene	ND	1.0	0.27 ug/L	12/15/14 13:06	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14 ug/L	12/15/14 13:06	1
1,2-Dichlorobenzene	ND	1.0	0.15 ug/L	12/15/14 13:06	1
1,2-Dichloroethane	ND	1.0	0.21 ug/L	12/15/14 13:06	1
1,2-Dichloropropane	ND	1.0	0.095 ug/L	12/15/14 13:06	1
1,3-Dichlorobenzene	ND	1.0	0.11 ug/L	12/15/14 13:06	1
1,4-Dichlorobenzene	ND	1.0	0.21 ug/L	12/15/14 13:06	1
2-Butanone (MEK)	ND	5.0	0.55 ug/L	12/15/14 13:06	1
2-Hexanone	ND	5.0	0.16 ug/L	12/15/14 13:06	1
4-Methyl-2-pentanone (MIBK)	ND	5.0	0.53 ug/L	12/15/14 13:06	1
Acetone	ND	5.0	2.5 ug/L	12/15/14 13:06	1
Benzene	ND	1.0	0.11 ug/L	12/15/14 13:06	1
Bromoform	ND	1.0	0.19 ug/L	12/15/14 13:06	1
Bromomethane	ND	1.0	0.31 ug/L	12/15/14 13:06	1
Carbon disulfide	ND	1.0	0.21 ug/L	12/15/14 13:06	1
Carbon tetrachloride	ND	1.0	0.14 ug/L	12/15/14 13:06	1
Chlorobenzene	ND	1.0	0.14 ug/L	12/15/14 13:06	1
Chlorodibromomethane	ND	1.0	0.14 ug/L	12/15/14 13:06	1
Chloroethane	ND	1.0	0.21 ug/L	12/15/14 13:06	1
Chloroform	ND	1.0	0.17 ug/L	12/15/14 13:06	1
Chloromethane	ND	1.0	0.28 ug/L	12/15/14 13:06	1
cis-1.2-Dichloroethene	ND	1.0	0.24 ua/L	12/15/14 13:06	1

1,2-Dibromoethane	ND	1.0	0.18 ug/L	12/15/14 13:06
Isopropylbenzene	ND	1.0	0.16 ug/L	12/15/14 13:06
Methyl acetate	ND	1.0	0.14 ug/L	12/15/14 13:06
Methyl tert-butyl ether	ND	1.0	0.18 ug/L	12/15/14 13:06
Methylcyclohexane	ND	1.0	0.26 ug/L	12/15/14 13:06
Methylene Chloride	ND	1.0	0.13 ug/L	12/15/14 13:06
Styrene	ND	1.0	0.097 ug/L	12/15/14 13:06
Tetrachloroethene	ND	1.0	0.15 ug/L	12/15/14 13:06
Toluene	ND	1.0	0.15 ug/L	12/15/14 13:06
trans-1,2-Dichloroethene	ND	1.0	0.17 ug/L	12/15/14 13:06

1.0

1.0

1.0

1.0

1.0

1.0

0.19 ug/L

0.25 ug/L

0.13 ug/L

0.19 ug/L

0.082 ug/L

0.23 ug/L

0.15 ug/L

Trichloroethene	ND	1.0	0.14 ug/L	12/15/14 13:06
Trichlorofluoromethane	ND	1.0	0.20 ug/L	12/15/14 13:06
Vinyl chloride	ND	1.0	0.23 ug/L	12/15/14 13:06

1.0

MB MB Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 100 64 - 135

ND

ND

ND

ND

ND

ND

ND

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Dil Fac

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-128326/7

Matrix: Water

Analysis Batch: 128326

Client Sample ID: Method Blank

Prep Type: Total/NA

	MB	MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 118		12/15/14 13:06	1
Dibromofluoromethane (Surr)	101		70 - 128		12/15/14 13:06	1
Toluene-d8 (Surr)	103		71 - 118		12/15/14 13:06	1

LCS LCS

Lab Sample ID: LCS 180-128326/10

Matrix: Water

Analysis Batch: 128326

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

%Rec.

Analyte Added Result Qualifier D %Rec Limits Unit

Spike

1,1,1-Trichloroethane	10.0	8.60	ug/L	86	63 - 133	
1,1,2,2-Tetrachloroethane	10.0	10.7	ug/L	107	62 - 125	
1,1,2-Trichloro-1,2,2-trifluoroetha	10.0	7.82	ug/L	78	46 - 148	
ne						
1,1,2-Trichloroethane	10.0	9.98	ug/L	100	77 ₋ 127	
1,1-Dichloroethane	10.0	9.21	ug/L	92	73 - 126	
1,1-Dichloroethene	10.0	9.00	ug/L	90	65 _ 136	
1,2,4-Trichlorobenzene	10.0	8.54	ug/L	85	60 - 127	
1,2-Dibromo-3-Chloropropane	10.0	9.95	ug/L	99	37 _ 133	
1,2-Dichlorobenzene	10.0	9.93	ug/L	99	77 - 120	
1,2-Dichloroethane	10.0	9.37	ug/L	94	68 - 132	
1,2-Dichloropropane	10.0	9.49	ug/L	95	76 - 124	
1,3-Dichlorobenzene	10.0	9.72	ug/L	97	76 - 120	
1,4-Dichlorobenzene	10.0	10.0	ug/L	100	77 - 120	
2-Butanone (MEK)	20.0	24.9	ug/L	124	39 - 138	
2-Hexanone	20.0	20.5	ug/L	103	25 - 132	
4-Methyl-2-pentanone (MIBK)	20.0	20.7	ug/L	103	45 - 145	
Acetone	20.0	22.4	ug/L	112	22 - 150	
Benzene	10.0	9.14	ug/L	91	80 - 120	
Bromoform	10.0	10.3	ug/L	103	46 - 150	
Bromomethane	10.0	7.71	ug/L	77	33 - 150	
Carbon disulfide	10.0	8.49	ug/L	85	54 - 132	
Carbon tetrachloride	10.0	8.72	ug/L	87	55 - 150	
Chlorobenzene	10.0	9.76	ug/L	98	80 - 120	
Chlorodibromomethane	10.0	10.7	ug/L	107	60 - 140	
Chloroethane	10.0	8.29	ug/L	83	36 - 142	
Chloroform	10.0	9.08	ug/L	91	72 _ 127	
Chloromethane	10.0	12.3	ug/L	123	50 - 139	
cis-1,2-Dichloroethene	10.0	9.61	ug/L	96	70 - 120	
cis-1,3-Dichloropropene	10.0	9.60	ug/L	96	66 - 120	
Cyclohexane	10.0	8.97	ug/L	90	45 - 142	
Dichlorobromomethane	10.0	9.42	ug/L	94	66 - 130	
Dichlorodifluoromethane	10.0	9.20	ug/L	92	13 - 150	
Ethylbenzene	10.0	8.80	ug/L	88	72 - 126	
1,2-Dibromoethane	10.0	10.4	ug/L	104	74 - 123	
Isopropylbenzene	10.0	8.83	ug/L	88	58 ₋ 130	
Methyl tert-butyl ether	10.0	8.48	ug/L	85	64 - 123	
Methylcyclohexane	10.0	8.26	ug/L	83	45 - 145	
Methylene Chloride	10.0	8.58	ug/L	86	63 - 129	
,			- 3	-· -		

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-128326/10

Matrix: Water

Analysis Batch: 128326

Client Sample ID:	Lab Control Sample
	Prep Type: Total/NA

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Styrene	10.0	8.83		ug/L		88	71 - 127	
Tetrachloroethene	10.0	9.01		ug/L		90	70 - 135	
Toluene	10.0	8.63		ug/L		86	80 - 123	
trans-1,2-Dichloroethene	10.0	9.72		ug/L		97	73 - 126	
trans-1,3-Dichloropropene	10.0	10.2		ug/L		102	65 - 125	
Trichloroethene	10.0	9.68		ug/L		97	73 - 120	
Trichlorofluoromethane	10.0	9.09		ug/L		91	44 - 150	
Vinyl chloride	10.0	10.7		ug/L		107	53 - 138	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		64 - 135
4-Bromofluorobenzene (Surr)	90		70 - 118
Dibromofluoromethane (Surr)	92		70 - 128
Toluene-d8 (Surr)	88		71 - 118

Lab Sample ID: 180-39575-10 MS

Matrix: Water

Client Sample ID: SG-4
Prep Type: Total/NA

Analysis Batch: 128326									
	•	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1,1-Trichloroethane	ND		10.0	8.68		ug/L		87	63 - 133
1,1,2,2-Tetrachloroethane	ND		10.0	10.4		ug/L		104	62 _ 125
1,1,2-Trichloro-1,2,2-trifluoroetha	ND		10.0	8.27		ug/L		83	46 - 148
ne									
1,1,2-Trichloroethane	ND		10.0	9.38		ug/L		94	77 - 127
1,1-Dichloroethane	ND		10.0	9.38		ug/L		94	73 - 126
1,1-Dichloroethene	ND		10.0	9.10		ug/L		91	65 - 136
1,2,4-Trichlorobenzene	ND		10.0	8.26		ug/L		83	60 - 127
1,2-Dibromo-3-Chloropropane	ND		10.0	10.8		ug/L		108	37 - 133
1,2-Dichlorobenzene	1.1		10.0	10.9		ug/L		98	77 - 120
1,2-Dichloroethane	ND		10.0	8.81		ug/L		88	68 - 132
1,2-Dichloropropane	ND		10.0	9.60		ug/L		96	76 - 124
1,3-Dichlorobenzene	ND		10.0	9.68		ug/L		97	76 - 120
1,4-Dichlorobenzene	0.25	J	10.0	9.81		ug/L		96	77 ₋ 120
2-Butanone (MEK)	ND		20.0	25.9		ug/L		129	39 - 138
2-Hexanone	ND		20.0	23.6		ug/L		118	25 - 132
4-Methyl-2-pentanone (MIBK)	ND		20.0	21.6		ug/L		108	45 - 145
Acetone	ND		20.0	26.7		ug/L		134	22 _ 150
Benzene	ND		10.0	9.11		ug/L		91	80 - 120
Bromoform	ND		10.0	10.3		ug/L		103	46 - 150
Bromomethane	ND		10.0	7.74		ug/L		77	33 _ 150
Carbon disulfide	ND		10.0	8.40		ug/L		84	54 - 132
Carbon tetrachloride	ND		10.0	9.32		ug/L		93	55 ₋ 150
Chlorobenzene	0.75	J	10.0	9.96		ug/L		92	80 - 120
Chlorodibromomethane	ND		10.0	9.79		ug/L		98	60 - 140
Chloroethane	ND		10.0	8.47		ug/L		85	36 - 142
Chloroform	ND		10.0	8.97		ug/L		90	72 ₋ 127
Chloromethane	ND		10.0	11.3		ug/L		113	50 ₋ 139

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Client: ARCADIS U.S. Inc Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-39575-10 MS

Matrix: Water

Analysis Batch: 128326

Client Sample ID: SG-4 Prep Type: Total/NA

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
cis-1,2-Dichloroethene	ND		10.0	9.45		ug/L		94	70 - 120	
cis-1,3-Dichloropropene	ND		10.0	9.29		ug/L		93	66 _ 120	
Cyclohexane	ND		10.0	9.45		ug/L		95	45 _ 142	
Dichlorobromomethane	ND		10.0	9.08		ug/L		91	66 _ 130	
Dichlorodifluoromethane	ND		10.0	9.16		ug/L		92	13 _ 150	
Ethylbenzene	ND		10.0	8.54		ug/L		85	72 - 126	
1,2-Dibromoethane	ND		10.0	10.2		ug/L		102	74 - 123	
Isopropylbenzene	ND		10.0	8.74		ug/L		87	58 ₋ 130	
Methyl tert-butyl ether	ND		10.0	8.56		ug/L		86	64 - 123	
Methylcyclohexane	ND		10.0	8.51		ug/L		85	45 _ 145	
Methylene Chloride	ND		10.0	8.45		ug/L		85	63 - 129	
Styrene	ND		10.0	8.50		ug/L		85	71 _ 127	
Tetrachloroethene	ND		10.0	9.31		ug/L		93	70 _ 135	
Toluene	ND		10.0	8.54		ug/L		85	80 _ 123	
trans-1,2-Dichloroethene	ND		10.0	9.51		ug/L		95	73 _ 126	
trans-1,3-Dichloropropene	ND		10.0	9.59		ug/L		96	65 - 125	
Trichloroethene	ND		10.0	9.51		ug/L		95	73 _ 120	
Trichlorofluoromethane	ND		10.0	8.75		ug/L		87	44 - 150	
Vinyl chloride	ND		10.0	10.6		ug/L		106	53 - 138	

MS MS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		64 - 135
4-Bromofluorobenzene (Surr)	97		70 - 118
Dibromofluoromethane (Surr)	99		70 - 128
Toluene-d8 (Surr)	97		71 - 118

Lab Sample ID: 180-39575-10 MSD

Matrix: Water

Analysis Batch: 128326

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1,1-Trichloroethane	ND		10.0	8.79		ug/L		88	63 - 133	1	35
1,1,2,2-Tetrachloroethane	ND		10.0	10.7		ug/L		107	62 - 125	2	35
1,1,2-Trichloro-1,2,2-trifluoroetha	ND		10.0	8.61		ug/L		86	46 - 148	4	35
ne											
1,1,2-Trichloroethane	ND		10.0	9.63		ug/L		96	77 - 127	3	35
1,1-Dichloroethane	ND		10.0	9.34		ug/L		93	73 - 126	0	35
1,1-Dichloroethene	ND		10.0	9.22		ug/L		92	65 - 136	1	35
1,2,4-Trichlorobenzene	ND		10.0	8.88		ug/L		89	60 - 127	7	35
1,2-Dibromo-3-Chloropropane	ND		10.0	10.6		ug/L		106	37 - 133	2	35
1,2-Dichlorobenzene	1.1		10.0	11.3		ug/L		102	77 - 120	4	24
1,2-Dichloroethane	ND		10.0	9.38		ug/L		94	68 - 132	6	32
1,2-Dichloropropane	ND		10.0	9.60		ug/L		96	76 - 124	0	34
1,3-Dichlorobenzene	ND		10.0	9.91		ug/L		99	76 - 120	2	24
1,4-Dichlorobenzene	0.25	J	10.0	10.1		ug/L		99	77 - 120	3	24
2-Butanone (MEK)	ND		20.0	26.0		ug/L		130	39 - 138	1	35
2-Hexanone	ND		20.0	23.5		ug/L		118	25 - 132	0	35
4-Methyl-2-pentanone (MIBK)	ND		20.0	21.6		ug/L		108	45 - 145	0	35

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1.

Client Sample ID: SG-4 Prep Type: Total/NA

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-39575-10 MSD

Matrix: Water

Analysis Batch: 128326

Client Sample ID: SG-4 Prep Type: Total/NA

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Acetone	ND		20.0	26.3		ug/L		132	22 - 150	2	35	
Benzene	ND		10.0	9.34		ug/L		93	80 - 120	2	32	
Bromoform	ND		10.0	10.3		ug/L		103	46 - 150	0	35	
Bromomethane	ND		10.0	7.68		ug/L		77	33 - 150	1	35	i
Carbon disulfide	ND		10.0	8.53		ug/L		85	54 - 132	2	35	
Carbon tetrachloride	ND		10.0	9.20		ug/L		92	55 - 150	1	35	ı
Chlorobenzene	0.75	J	10.0	10.2		ug/L		94	80 - 120	2	29	
Chlorodibromomethane	ND		10.0	10.2		ug/L		102	60 - 140	4	35	ı
Chloroethane	ND		10.0	9.21		ug/L		92	36 - 142	8	35	ı
Chloroform	ND		10.0	9.12		ug/L		91	72 - 127	2	35	
Chloromethane	ND		10.0	12.7		ug/L		127	50 - 139	11	35	
cis-1,2-Dichloroethene	ND		10.0	9.99		ug/L		100	70 - 120	6	35	
cis-1,3-Dichloropropene	ND		10.0	9.48		ug/L		95	66 - 120	2	35	
Cyclohexane	ND		10.0	9.37		ug/L		94	45 - 142	1	35	
Dichlorobromomethane	ND		10.0	9.31		ug/L		93	66 - 130	2	35	ı
Dichlorodifluoromethane	ND		10.0	9.15		ug/L		91	13 - 150	0	35	
Ethylbenzene	ND		10.0	8.66		ug/L		87	72 - 126	1	33	
1,2-Dibromoethane	ND		10.0	10.2		ug/L		102	74 - 123	0	35	
Isopropylbenzene	ND		10.0	8.69		ug/L		87	58 - 130	1	35	
Methyl tert-butyl ether	ND		10.0	8.75		ug/L		87	64 - 123	2	35	
Methylcyclohexane	ND		10.0	8.75		ug/L		88	45 - 145	3	35	
Methylene Chloride	ND		10.0	9.10		ug/L		91	63 - 129	7	35	
Styrene	ND		10.0	8.87		ug/L		89	71 - 127	4	34	
Tetrachloroethene	ND		10.0	8.84		ug/L		88	70 - 135	5	35	

MSD MSD

ND

ND

ND

ND

ND

ND

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		64 - 135
4-Bromofluorobenzene (Surr)	94		70 - 118
Dibromofluoromethane (Surr)	102		70 - 128
Toluene-d8 (Surr)	96		71 - 118

Lab Sample ID: MB 180-128456/7 Client Sample ID: Method Blank Prep Type: Total/NA

10.0

10.0

10.0

10.0

10.0

10.0

8.63

9.82

9.92

9.77

9.01

11.0

ug/L

ug/L

ug/L

ug/L

ug/L

ug/L

86

98

99

90

110

80 - 123

73 - 126

65 - 125

73 _ 120

44 - 150

53 - 138

Matrix: Water Analysis Batch: 128456

Toluene

trans-1,2-Dichloroethene

trans-1,3-Dichloropropene

Trichlorofluoromethane

Trichloroethene

Vinyl chloride

мв мв

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			12/16/14 12:20	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			12/16/14 12:20	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			12/16/14 12:20	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			12/16/14 12:20	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			12/16/14 12:20	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			12/16/14 12:20	1

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-128456/7

Matrix: Water

Methylene Chloride

Tetrachloroethene

Trichloroethene

Vinyl chloride

trans-1,2-Dichloroethene

Trichlorofluoromethane

trans-1,3-Dichloropropene

Styrene

Toluene

Analysis Batch: 128456

Client Sample ID: Method Blank Prep Type: Total/NA

MB MB Result Qualifier RL MDL Unit Prepared Dil Fac Analyte D Analyzed 1,2,4-Trichlorobenzene ND 1.0 0.27 ug/L 12/16/14 12:20 1,2-Dibromo-3-Chloropropane ND 1.0 0.14 ug/L 12/16/14 12:20 1,2-Dichlorobenzene ND 1.0 0.15 ug/L 12/16/14 12:20 1,2-Dichloroethane ND 1.0 0.21 ug/L 12/16/14 12:20 ND 1,2-Dichloropropane 1.0 0.095 ug/L 12/16/14 12:20 ND 12/16/14 12:20 1,3-Dichlorobenzene 1.0 0.11 ug/L 12/16/14 12:20 1,4-Dichlorobenzene ND 1.0 0.21 ug/L 2-Butanone (MEK) ND 5.0 0.55 ug/L 12/16/14 12:20 2-Hexanone ND 5.0 0.16 ug/L 12/16/14 12:20 4-Methyl-2-pentanone (MIBK) ND 5.0 0.53 ug/L 12/16/14 12:20 Acetone ND 5.0 2.5 ug/L 12/16/14 12:20 Benzene ND 1.0 0.11 ug/L 12/16/14 12:20 Bromoform ND 1.0 0.19 ug/L 12/16/14 12:20 Bromomethane ND 1.0 0.31 ug/L 12/16/14 12:20 Carbon disulfide ND 1.0 0.21 ug/L 12/16/14 12:20 Carbon tetrachloride ND 0.14 1.0 ug/L 12/16/14 12:20 Chlorobenzene ND 1.0 0.14 ug/L 12/16/14 12:20 Chlorodibromomethane ND 1.0 0.14 ug/L 12/16/14 12:20 Chloroethane ND 1.0 0.21 12/16/14 12:20 ug/L Chloroform ND 1.0 0.17 ug/L 12/16/14 12:20 Chloromethane ND 0.28 12/16/14 12:20 1.0 ug/L cis-1.2-Dichloroethene ND 1.0 0.24 ug/L 12/16/14 12:20 cis-1,3-Dichloropropene ND 1.0 0.19 ug/L 12/16/14 12:20 Cyclohexane ND 1.0 0.25 ug/L 12/16/14 12:20 Dichlorobromomethane ND 1.0 0.13 ug/L 12/16/14 12:20 Dichlorodifluoromethane ND 1.0 12/16/14 12:20 0.19 ua/L ND Ethyl ether 1.0 0.082 ug/L 12/16/14 12:20 ND Ethylbenzene 1.0 0.23 ug/L 12/16/14 12:20 1.2-Dibromoethane ND 1.0 0.18 ug/L 12/16/14 12:20 Isopropylbenzene ND 1.0 0.16 ug/L 12/16/14 12:20 Methyl acetate ND 1.0 0.14 ug/L 12/16/14 12:20 Methyl tert-butyl ether ND 1.0 0.18 ug/L 12/16/14 12:20 Methylcyclohexane ND 1.0 12/16/14 12:20 0.26 ug/L

ИВ	MB	

ND

ND

ND

ND

ND

ND

ND

ND

ND

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		64 - 135		12/16/14 12:20	1
4-Bromofluorobenzene (Surr)	99		70 - 118		12/16/14 12:20	1
Dibromofluoromethane (Surr)	101		70 - 128		12/16/14 12:20	1
Toluene-d8 (Surr)	102		71 - 118		12/16/14 12:20	1

1.0

1.0

1.0

1.0

1.0

1.0

1.0

1.0

1.0

0.13 ug/L

0.097 ug/L

0.15 ug/L

0.15 ug/L

0.17 ug/L

0.15 ug/L

0.23 ug/L

ug/L

0.14

0.20 ug/L

TestAmerica Pittsburgh

12/16/14 12:20

12/16/14 12:20

12/16/14 12:20

12/16/14 12:20

12/16/14 12:20

12/16/14 12:20

12/16/14 12:20

12/16/14 12:20

12/16/14 12:20

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12/30/2014

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-128456/10

Matrix: Water

Client Sample ID: Lab Control Sample Prep Type: Total/NA

	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1,1-Trichloroethane	10.0	8.52		ug/L		85	63 - 133
1,1,2,2-Tetrachloroethane	10.0	11.0		ug/L		110	62 _ 125
1,1,2-Trichloro-1,2,2-trifluoroetha	10.0	8.28		ug/L		83	46 - 148
ne 1,1,2-Trichloroethane	10.0	10.3		ug/L		103	77 ₋ 127
I,1-Dichloroethane	10.0	9.23		ug/L		92	73 - 126
1,1-Dichloroethene	10.0	9.60		ug/L		96	65 - 136
1,2,4-Trichlorobenzene	10.0	8.92		ug/L		89	60 - 127
1,2-Dibromo-3-Chloropropane	10.0	9.99		ug/L		100	37 ₋ 133
1,2-Dichlorobenzene	10.0	9.74		ug/L		97	77 - 120
1,2-Dichloroethane	10.0	9.31		ug/L		93	68 - 132
1,2-Dichloropropane	10.0	9.47		ug/L		95	76 - 124
1,3-Dichlorobenzene	10.0	10.0		ug/L		100	76 - 120
,4-Dichlorobenzene	10.0	10.1		ug/L		101	77 - 120
2-Butanone (MEK)	20.0	24.2		ug/L		121	39 - 138
2-Hexanone	20.0	22.4		ug/L		112	25 - 132
1-Methyl-2-pentanone (MIBK)	20.0	21.1		ug/L		105	45 - 145
Acetone	20.0	23.3		ug/L		117	22 - 150
Benzene	10.0	9.21		ug/L		92	80 - 120
Bromoform	10.0	10.1		ug/L		101	46 - 150
Bromomethane	10.0	6.39		ug/L		64	33 - 150
Carbon disulfide	10.0	8.17		ug/L		82	54 - 132
Carbon tetrachloride	10.0	9.03		ug/L		90	55 - 150
Chlorobenzene	10.0	9.93		ug/L		99	80 - 120
Chlorodibromomethane	10.0	10.1		ug/L		101	60 - 140
Chloroethane	10.0	8.79		ug/L		88	36 - 142
Chloroform	10.0	9.36		ug/L		94	72 - 127
Chloromethane	10.0	11.6		ug/L		116	50 - 139
cis-1,2-Dichloroethene	10.0	9.34		ug/L		93	70 - 120
cis-1,3-Dichloropropene	10.0	8.82		ug/L		88	66 - 120
Cyclohexane	10.0	9.69		ug/L		97	45 ₋ 142
Dichlorobromomethane	10.0	9.01		ug/L		90	66 - 130
Dichlorodifluoromethane	10.0	9.86		ug/L		99	13 - 150
Ethylbenzene	10.0	8.77		ug/L		88	72 ₋ 126
1,2-Dibromoethane	10.0	10.4		ug/L		104	74 - 123
sopropylbenzene	10.0	9.16		ug/L		92	58 ₋ 130
Methyl tert-butyl ether	10.0	8.05		ug/L		80	64 - 123
Methylcyclohexane	10.0	8.68		ug/L		87	45 - 145
Methylene Chloride	10.0	10.5		ug/L		105	63 - 129
Styrene	10.0	9.45		ug/L		95	71 - 127
Fetrachloroethene	10.0	9.66		ug/L		97	70 - 135
Foluene	10.0	9.16		ug/L		92	80 - 123
trans-1,2-Dichloroethene	10.0	10.0		ug/L ug/L		100	73 - 126
	10.0					88	73 - 126 65 - 125
rrans-1,3-Dichloropropene Trichloroethene	10.0	8.81 9.83		ug/L		98	73 ₋ 120
Trichloroethene Trichlorofluoromethane	10.0	9.83		ug/L		98 91	73 - 120 44 - 150
Vinyl chloride	10.0	10.9		ug/L			53 - 138

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-128456/10

Matrix: Water

Analysis Batch: 128456

Client Sample ID: Lab Control Sample Prep Type: Total/NA

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		64 - 135
4-Bromofluorobenzene (Surr)	97		70 - 118
Dibromofluoromethane (Surr)	101		70 - 128
Toluene-d8 (Surr)	101		71 - 118

Client Sample ID: Method Blank

Prep Type: Total/NA

Lab Sample ID: MB 180-128468/5

Matrix: Water

Analysis Batch: 128468

	MB	MB							
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 12:07	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 12:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 12:07	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 12:07	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 12:07	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 12:07	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 12:07	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 12:07	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			12/16/14 12:07	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 12:07	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 12:07	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 12:07	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 12:07	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 12:07	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 12:07	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 12:07	1
Acetone	ND		5.0	2.5	ug/L			12/16/14 12:07	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 12:07	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 12:07	1
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 12:07	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 12:07	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 12:07	1
Chlorobenzene	ND		1.0	0.14	ug/L			12/16/14 12:07	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 12:07	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 12:07	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 12:07	1
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 12:07	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 12:07	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 12:07	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 12:07	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 12:07	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 12:07	1
Ethyl ether	ND		1.0	0.082	ug/L			12/16/14 12:07	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 12:07	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 12:07	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 12:07	1
Methyl acetate	ND		1.0		ug/L			12/16/14 12:07	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 12:07	1

Client: ARCADIS U.S. Inc Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-128468/5

Matrix: Water

Analysis Batch: 128468

Client Sample ID: Method Blank	
Prep Type: Total/NA	

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 12:07	1
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 12:07	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 12:07	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 12:07	1
Toluene	ND		1.0	0.15	ug/L			12/16/14 12:07	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 12:07	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 12:07	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 12:07	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 12:07	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 12:07	1

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Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		64 - 135	_		12/16/14 12:07	1
4-Bromofluorobenzene (Surr)	107		70 - 118			12/16/14 12:07	1
Dibromofluoromethane (Surr)	102		70 - 128			12/16/14 12:07	1
Toluene-d8 (Surr)	100		71 - 118			12/16/14 12:07	1

Lab Sample ID: LCS 180-128468/8 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

Analysis Batch: 128468							
	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1,1-Trichloroethane	10.0	8.49		ug/L		85	63 - 133
1,1,2,2-Tetrachloroethane	10.0	9.19		ug/L		92	62 _ 125
1,1,2-Trichloro-1,2,2-trifluoroetha	10.0	9.28		ug/L		93	46 - 148
ne							
1,1,2-Trichloroethane	10.0	8.87		ug/L		89	77 ₋ 127
1,1-Dichloroethane	10.0	9.06		ug/L		91	73 - 126
1,1-Dichloroethene	10.0	9.12		ug/L		91	65 _ 136
1,2,4-Trichlorobenzene	10.0	8.63		ug/L		86	60 - 127
1,2-Dibromo-3-Chloropropane	10.0	9.18		ug/L		92	37 ₋ 133
1,2-Dichlorobenzene	10.0	9.00		ug/L		90	77 _ 120
1,2-Dichloroethane	10.0	9.16		ug/L		92	68 - 132
1,2-Dichloropropane	10.0	8.93		ug/L		89	76 ₋ 124
1,3-Dichlorobenzene	10.0	9.22		ug/L		92	76 - 120
1,4-Dichlorobenzene	10.0	9.14		ug/L		91	77 _ 120
2-Butanone (MEK)	20.0	18.6		ug/L		93	39 _ 138
2-Hexanone	20.0	15.9		ug/L		80	25 - 132
4-Methyl-2-pentanone (MIBK)	20.0	18.5		ug/L		92	45 - 145
Acetone	20.0	19.9		ug/L		100	22 - 150
Benzene	10.0	9.13		ug/L		91	80 - 120
Bromoform	10.0	9.17		ug/L		92	46 - 150
Bromomethane	10.0	10.1		ug/L		101	33 _ 150
Carbon disulfide	10.0	8.69		ug/L		87	54 ₋ 132
Carbon tetrachloride	10.0	9.20		ug/L		92	55 - 150
Chlorobenzene	10.0	9.41		ug/L		94	80 - 120
Chlorodibromomethane	10.0	9.43		ug/L		94	60 - 140
Chloroethane	10.0	8.97		ug/L		90	36 - 142

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Client: ARCADIS U.S. Inc Project/Site: INDSPEC, Petrolia PA

Project/Site. INDSPEC, Petrolla PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-128468/8

Matrix: Water

Analysis Batch: 128468

Client Sample ID: Lab Control Sample Prep Type: Total/NA

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloroform	10.0	9.08		ug/L		91	72 - 127	
Chloromethane	10.0	8.94		ug/L		89	50 - 139	
cis-1,2-Dichloroethene	10.0	9.66		ug/L		97	70 - 120	
cis-1,3-Dichloropropene	10.0	8.59		ug/L		86	66 - 120	
Cyclohexane	10.0	9.02		ug/L		90	45 - 142	
Dichlorobromomethane	10.0	8.96		ug/L		90	66 - 130	
Dichlorodifluoromethane	10.0	9.60		ug/L		96	13 - 150	
Ethylbenzene	10.0	9.42		ug/L		94	72 - 126	
1,2-Dibromoethane	10.0	9.65		ug/L		96	74 - 123	
Isopropylbenzene	10.0	9.73		ug/L		97	58 - 130	
Methyl tert-butyl ether	10.0	8.42		ug/L		84	64 - 123	
Methylcyclohexane	10.0	8.48		ug/L		85	45 - 145	
Methylene Chloride	10.0	10.6		ug/L		106	63 - 129	
Styrene	10.0	9.66		ug/L		97	71 - 127	
Tetrachloroethene	10.0	9.69		ug/L		97	70 - 135	
Toluene	10.0	9.52		ug/L		95	80 - 123	
trans-1,2-Dichloroethene	10.0	9.08		ug/L		91	73 - 126	
trans-1,3-Dichloropropene	10.0	8.96		ug/L		90	65 - 125	
Trichloroethene	10.0	9.05		ug/L		90	73 - 120	
Trichlorofluoromethane	10.0	9.53		ug/L		95	44 - 150	
Vinyl chloride	10.0	8.94		ug/L		89	53 - 138	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		64 - 135
4-Bromofluorobenzene (Surr)	94		70 - 118
Dibromofluoromethane (Surr)	94		70 - 128
Toluene-d8 (Surr)	96		71 - 118

Lab Sample ID: 180-39575-1 MS

Matrix: Water

Analysis Batch: 128468

•	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1,1-Trichloroethane	ND		10.0	9.22	-	ug/L		92	63 - 133	
1,1,2,2-Tetrachloroethane	ND		10.0	10.2		ug/L		102	62 _ 125	
1,1,2-Trichloro-1,2,2-trifluoroetha	ND		10.0	8.68		ug/L		87	46 - 148	
ne										
1,1,2-Trichloroethane	ND		10.0	10.2		ug/L		102	77 ₋ 127	
1,1-Dichloroethane	ND		10.0	9.16		ug/L		92	73 - 126	
1,1-Dichloroethene	ND		10.0	8.79		ug/L		88	65 - 136	
1,2,4-Trichlorobenzene	ND		10.0	8.46		ug/L		85	60 ₋ 127	
1,2-Dibromo-3-Chloropropane	ND		10.0	8.86		ug/L		89	37 _ 133	
1,2-Dichlorobenzene	0.63	J	10.0	9.98		ug/L		93	77 - 120	
1,2-Dichloroethane	ND		10.0	9.14		ug/L		91	68 - 132	
1,2-Dichloropropane	ND		10.0	9.30		ug/L		93	76 - 124	
1,3-Dichlorobenzene	ND		10.0	9.31		ug/L		93	76 - 120	
1,4-Dichlorobenzene	ND		10.0	9.42		ug/L		94	77 - 120	
2-Butanone (MEK)	ND		10.0	9.89		ug/L		99	39 _ 138	

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Client Sample ID: SW-5_LANGAN

Prep Type: Total/NA

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: 180-39575-1 MS

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: SW-5_LANGAN

Matrix: Water

Analysis Batch: 128468

Prep Type: Total/NA

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
2-Hexanone	ND		10.0	8.10		ug/L		81	25 - 132	
4-Methyl-2-pentanone (MIBK)	ND		10.0	9.09		ug/L		91	45 - 145	
Acetone	2.5	J	10.0	10.3		ug/L		78	22 _ 150	
Benzene	ND		10.0	9.25		ug/L		93	80 - 120	
Bromoform	ND		10.0	9.79		ug/L		98	46 - 150	
Bromomethane	ND		10.0	9.60		ug/L		96	33 - 150	
Carbon disulfide	ND		10.0	8.41		ug/L		84	54 - 132	
Carbon tetrachloride	ND		10.0	9.29		ug/L		93	55 _ 150	
Chlorobenzene	0.34	J	10.0	10.8		ug/L		104	80 - 120	
Chlorodibromomethane	ND		10.0	10.2		ug/L		102	60 - 140	
Chloroethane	ND		10.0	9.42		ug/L		94	36 - 142	
Chloroform	ND		10.0	9.09		ug/L		91	72 _ 127	
Chloromethane	ND		10.0	9.33		ug/L		93	50 - 139	
cis-1,2-Dichloroethene	ND		10.0	9.15		ug/L		92	70 - 120	
cis-1,3-Dichloropropene	ND		10.0	9.06		ug/L		91	66 - 120	
Cyclohexane	ND		10.0	9.22		ug/L		92	45 - 142	
Dichlorobromomethane	ND		10.0	8.79		ug/L		88	66 - 130	
Dichlorodifluoromethane	ND		10.0	9.24		ug/L		92	13 _ 150	
Ethylbenzene	ND		10.0	10.4		ug/L		104	72 - 126	
1,2-Dibromoethane	ND		10.0	9.92		ug/L		99	74 - 123	
Isopropylbenzene	ND		10.0	10.6		ug/L		106	58 - 130	
Methyl tert-butyl ether	ND		10.0	8.69		ug/L		87	64 - 123	
Methylcyclohexane	ND		10.0	8.91		ug/L		89	45 - 145	
Methylene Chloride	ND		10.0	10.5		ug/L		105	63 - 129	
Styrene	ND		10.0	10.1		ug/L		101	71 - 127	
Tetrachloroethene	ND		10.0	10.0		ug/L		100	70 - 135	
Toluene	ND		10.0	10.4		ug/L		104	80 - 123	
trans-1,2-Dichloroethene	ND		10.0	9.31		ug/L		93	73 ₋ 126	
trans-1,3-Dichloropropene	ND		10.0	10.8		ug/L		108	65 ₋ 125	
Trichloroethene	ND		10.0	9.34		ug/L		93	73 _ 120	
Trichlorofluoromethane	ND		10.0	9.21		ug/L		92	44 - 150	
Vinyl chloride	ND		10.0	9.20		ug/L		92	53 _ 138	

MS MS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		64 - 135
4-Bromofluorobenzene (Surr)	104		70 - 118
Dibromofluoromethane (Surr)	93		70 - 128
Toluene-d8 (Surr)	104		71 - 118

Lab Sample ID: 180-39575-1 MSD

Matrix: Water

Analysis Batch: 128468

Client Sample ID: SW-5_LANGAN
Prep Type: Total/NA

-	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1,1-Trichloroethane	ND		10.0	9.13		ug/L		91	63 - 133	1	35
1,1,2,2-Tetrachloroethane	ND		10.0	10.1		ug/L		101	62 - 125	1	35
1,1,2-Trichloro-1,2,2-trifluoroetha	ND		10.0	8.70		ug/L		87	46 - 148	0	35
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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-39575-1 MSD

Matrix: Water

Analysis Batch: 128468

Client Sample ID: SW-5_LANGAN

Prep Type: Total/NA

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte		Qualifier	Added		Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1,2-Trichloroethane	ND		10.0	9.64		ug/L		96	77 - 127	5	35
1,1-Dichloroethane	ND		10.0	9.40		ug/L		94	73 - 126	3	35
1,1-Dichloroethene	ND		10.0	8.53		ug/L		85	65 - 136	3	35
1,2,4-Trichlorobenzene	ND		10.0	8.51		ug/L		85	60 - 127	1	35
1,2-Dibromo-3-Chloropropane	ND		10.0	8.77		ug/L		88	37 - 133	1	35
1,2-Dichlorobenzene	0.63	J	10.0	9.99		ug/L		94	77 - 120	0	24
1,2-Dichloroethane	ND		10.0	9.28		ug/L		93	68 - 132	2	32
1,2-Dichloropropane	ND		10.0	9.15		ug/L		91	76 - 124	2	34
1,3-Dichlorobenzene	ND		10.0	9.39		ug/L		94	76 - 120	1	24
1,4-Dichlorobenzene	ND		10.0	9.80		ug/L		98	77 - 120	4	24
2-Butanone (MEK)	ND		10.0	10.1		ug/L		101	39 - 138	2	35
2-Hexanone	ND		10.0	7.63		ug/L		76	25 - 132	6	35
4-Methyl-2-pentanone (MIBK)	ND		10.0	9.67		ug/L		97	45 - 145	6	35
Acetone	2.5	J	10.0	12.6		ug/L		101	22 - 150	20	35
Benzene	ND		10.0	9.33		ug/L		93	80 - 120	1	32
Bromoform	ND		10.0	8.58		ug/L		86	46 - 150	13	35
Bromomethane	ND		10.0	9.91		ug/L		99	33 - 150	3	35
Carbon disulfide	ND		10.0	8.21		ug/L		82	54 - 132	2	35
Carbon tetrachloride	ND		10.0	8.92		ug/L		89	55 - 150	4	35
Chlorobenzene	0.34	J	10.0	10.0		ug/L		97	80 - 120	7	29
Chlorodibromomethane	ND		10.0	9.46		ug/L		95	60 - 140	8	35
Chloroethane	ND		10.0	9.16		ug/L		92	36 - 142	3	35
Chloroform	ND		10.0	9.44		ug/L		94	72 - 127	4	35
Chloromethane	ND		10.0	9.48		ug/L		95	50 - 139	2	35
cis-1,2-Dichloroethene	ND		10.0	9.36		ug/L		94	70 - 120	2	35
cis-1,3-Dichloropropene	ND		10.0	8.95		ug/L		89	66 - 120	1	35
Cyclohexane	ND		10.0	8.78		ug/L		88	45 - 142	5	35
Dichlorobromomethane	ND		10.0	8.82		ug/L		88	66 - 130	0	35
Dichlorodifluoromethane	ND		10.0	8.63		ug/L		86	13 - 150	7	35
Ethylbenzene	ND		10.0	9.46		ug/L		95	72 - 126	10	33
1,2-Dibromoethane	ND		10.0	9.72		ug/L		97	74 - 123	2	35
Isopropylbenzene	ND		10.0	9.73		ug/L		97	58 - 130	8	35
Methyl tert-butyl ether	ND		10.0	8.88		ug/L		89	64 - 123	2	35
Methylcyclohexane	ND		10.0	8.82		ug/L		88	45 - 145	1	35
Methylene Chloride	ND		10.0	11.1		ug/L		111	63 - 129	6	35
Styrene	ND		10.0	9.50		ug/L		95	71 - 127	6	34
Tetrachloroethene	ND		10.0	9.01		ug/L		90	70 - 135	10	35
Toluene	ND		10.0	9.85		ug/L		99	80 - 123	5	35
trans-1,2-Dichloroethene	ND		10.0	9.21		ug/L		92	73 - 126	1	35
trans-1,3-Dichloropropene	ND		10.0	10.4		ug/L		104	65 - 125	4	35
Trichloroethene	ND		10.0	9.08		ug/L		91	73 - 120	3	35
Trichlorofluoromethane	ND		10.0	8.76		ug/L		88	44 - 150	5	35
Vinyl chloride	ND		10.0	8.80		ug/L		88	53 - 138	4	35

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		64 - 135
4-Bromofluorobenzene (Surr)	94		70 - 118
Dibromofluoromethane (Surr)	90		70 - 128

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-39575-1 MSD

Matrix: Water

Analysis Batch: 128468

MSD MSD

Surrogate %Recovery Qualifier Limits Toluene-d8 (Surr) 100 71 - 118 Client Sample ID: SW-5_LANGAN

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Type: Total/NA

Prep Batch: 127659

10

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 180-127659/1-A

Matrix: Water

Analysis Batch: 127827

MB MB

Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac Phenol ND 1.0 0.055 ug/L 12/09/14 08:31 12/10/14 10:55

MR MR

	IND	INID				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	63		30 - 150	12/09/14 08:31	12/10/14 10:55	1
2-Fluorobiphenyl	69		30 - 150	12/09/14 08:31	12/10/14 10:55	1
2-Fluorophenol	67		30 - 150	12/09/14 08:31	12/10/14 10:55	1
Nitrobenzene-d5	66		30 - 150	12/09/14 08:31	12/10/14 10:55	1
Phenol-d5	65		30 - 150	12/09/14 08:31	12/10/14 10:55	1
Terphenyl-d14	65		10 - 150	12/09/14 08:31	12/10/14 10:55	1
<u> </u>						

Lab Sample ID: LCS 180-127659/2-A

Lab Sample ID: LCSD 180-127659/3-A

Matrix: Water

Matrix: Water

Analysis Batch: 127827

Analysis Batch: 127827

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 127659

%Rec.

Analyte Added Result Qualifier Unit %Rec Limits Phenol 20.0 14.3 ug/L 30 - 150

Spike

LCS LCS

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
2,4,6-Tribromophenol	77		30 - 150
2-Fluorobiphenyl	76		30 - 150
2-Fluorophenol	71		30 - 150
Nitrobenzene-d5	77		30 - 150
Phenol-d5	70		30 - 150
Terphenyl-d14	71		10 - 150

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 127659

Spike LCSD LCSD RPD %Rec. Analyte Added Result Qualifier Unit %Rec RPD Limit Phenol 20.0 16.0 30 - 150 35 ug/L 80

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
2,4,6-Tribromophenol	88		30 - 150
2-Fluorobiphenyl	79		30 - 150
2-Fluorophenol	79		30 - 150
Nitrobenzene-d5	81		30 - 150
Phenol-d5	77		30 - 150

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCSD 180-127659/3-A

Lab Sample ID: MB 180-127798/1-A

Matrix: Water

Analysis Batch: 127827

Analysis Batch: 128007

Surrogate

Matrix: Water

Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA

Prep Batch: 127659

LCSD LCSD

Limits %Recovery Qualifier Terphenyl-d14 73 10 - 150

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 127798

Prep Type: Total/NA

Prep Batch: 127798

%Rec.

30 - 150

57

мв мв

RL MDL Unit Analyte Result Qualifier D Prepared Analyzed Dil Fac Phenol ND 1.0 0.055 ug/L 12/10/14 08:24 12/11/14 13:19

MB MB Qualifier Prepared Dil Fac Surrogate %Recovery Limits Analyzed 12/10/14 08:24 2,4,6-Tribromophenol 69 30 - 150 12/11/14 13:19 2-Fluorobiphenyl 70 30 - 150 12/10/14 08:24 12/11/14 13:19 2-Fluorophenol 73 30 - 150 12/10/14 08:24 12/11/14 13:19 Nitrobenzene-d5 74 30 - 150 12/10/14 08:24 12/11/14 13:19 71 30 - 150 Phenol-d5 12/10/14 08:24 12/11/14 13:19 Terphenyl-d14 71 10 - 150 12/10/14 08:24 12/11/14 13:19

Lab Sample ID: LCS 180-127798/2-A Client Sample ID: Lab Control Sample

Matrix: Water

Analysis Batch: 128007

Analysis Batch: 128007

Phenol

Spike LCS LCS

Analyte Added Result Qualifier Unit D %Rec Limits Phenol 20.0 15.1 ug/L 30 - 150

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
2,4,6-Tribromophenol	78		30 - 150
2-Fluorobiphenyl	78		30 - 150
2-Fluorophenol	78		30 - 150
Nitrobenzene-d5	78		30 - 150
Phenol-d5	73		30 - 150
Terphenyl-d14	70		10 - 150

Lab Sample ID: 180-39575-10 MS Client Sample ID: SG-4 **Matrix: Water** Prep Type: Total/NA

Prep Batch: 127798

ug/L

11.3

Spike MS MS %Rec. Sample Sample Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits 20.0

MS MS

ND

Surrogate	%Recovery	Qualifier	Limits		
2,4,6-Tribromophenol	89		30 - 150		
2-Fluorobiphenyl	68		30 - 150		
2-Fluorophenol	57		30 - 150		
Nitrobenzene-d5	65		30 - 150		
Phenol-d5	62		30 - 150		
Terphenyl-d14	64		10 - 150		

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: 180-39575-1 Matrix: Water Analysis Batch: 128007	0 MSD									mple ID: ype: Tot Batch: 1	tal/NA
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Phenol	ND		18.5	10.1		ug/L		55	30 - 150	11	35
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
2,4,6-Tribromophenol	96		30 _ 150								
2-Fluorobiphenyl	66		30 _ 150								
2-Fluorophenol	59		30 - 150								
Nitrobenzene-d5	64		30 - 150								
Phenol-d5	61		30 - 150								
Terphenyl-d14	63		10 - 150								

Method: 300.0 - Anions, Ion Chro	omatogr	aphy										
Lab Sample ID: MB 180-128954/17										Client S	Sample ID: Metho	d Blank
Matrix: Water											Prep Type: 1	Γotal/NA
Analysis Batch: 128954												
-	MB	MB										
Analyte	Result	Qualifier		RL		MDL	Unit		D	Prepared	Analyzed	Dil Fac
Sulfate	ND			1.0		0.21	mg/L				12/20/14 17:09	1
Lab Sample ID: LCS 180-128954/16									Clie	nt Sample	e ID: Lab Control	Sample
Matrix: Water										_	Prep Type: 1	Γotal/NA
Analysis Batch: 128954												
-			Spike		LCS	LCS					%Rec.	
Analyte			Added		Result	Qual	lifier	Unit	D	%Rec	Limits	
Sulfate			50.0		48.4			mg/L		97	90 - 110	

Lab Sample ID: MB 180-129078/6	Client Sample ID: Method Blank
Matrix: Water	Prep Type: Total/NA

Analysis Batch: 129078

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.21	mg/L			12/22/14 12:22	1

Sulfate		ND	1	1.0	0.21 mg/L				12/22/14 12:22	1
Lab Sample ID: LCS 180-129078/5							Client	t Sample	e ID: Lab Control :	Sample
Matrix: Water									Prep Type: To	otal/NA
Analysis Batch: 129078										
			Spike	LCS	LCS				%Rec.	
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	
Sulfate			50.0	48.6		mg/L		97	90 - 110	
- Lab Sample ID: 180-39575-10 MS									Client Sample II	D: SG-4
Matrix: Water									Prep Type: T	otal/NA
Analysis Batch: 129078										
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Sulfate	79		25.0	107		mg/L		112	80 - 120	

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: SG-4

Prep Type: Total/NA

Prep Type: Soluble

Prep Type: Soluble

Client Sample ID: SED-102

Prep Type: Soluble

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 180-39575-10 MSD

Matrix: Water

Analysis Batch: 129078

Sample Sample Spike MSD MSD %Rec. RPD Added RPD Result Qualifier Result Qualifier %Rec Limits Limit Analyte Unit D 25.0 80 - 120 Sulfate 79 100 mg/L 87

Lab Sample ID: LB3 180-129253/1-A

Matrix: Solid

Analysis Batch: 129332

LB3 LB3

Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac 2.1 Sulfate ND 10 mg/Kg 12/24/14 10:57

Lab Sample ID: LCS 180-129253/2-A

Matrix: Solid

Analysis Batch: 129332

Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit %Rec Limits Bromide 100 103 mg/Kg 103 90 - 110 Chloride 500 550 mg/Kg 110 90 - 110 Fluoride 25.0 26.7 107 mg/Kg 90 - 110 Sulfate 500 505 90 - 110 mg/Kg 101

Lab Sample ID: 180-39575-4 MS

Matrix: Solid

Analysis Batch: 129332 Sample Sample Spike MS MS %Rec. Qualifier Added Limits Analyte Result Qualifier Unit D %Rec Result ₩ 68.3 Bromide ND 75.3 mg/Kg 110 80 - 120 ₩ Chloride 31 341 287 F1 mg/Kg 75 80 - 120 ₽ 17.1 F1

341

26.9

361 F1

mg/Kg

mg/Kg

158

65

77

80 - 120

80 - 120

Client Sample ID: Method Blank

Lab Sample ID: 180-39575-4 MSD

Matrix: Solid

Fluoride

Sulfate

Analysis Batch: 129332

Spike MSD MSD %Rec. RPD Sample Sample Analyte Qualifier Added Qualifier %Rec Limits RPD Result Result Unit D Limit Bromide ND 67.4 71.7 $\overline{\Box}$ 106 80 - 120 5 20 mg/Kg ₩ Chloride 31 337 268 F1 mg/Kg 71 80 - 120 20 ₽ Fluoride ND 16.8 23.4 F1 80 - 120 mg/Kg 139 14 20 . . 80 - 120 337 598 F1 F2 Sulfate 140 mg/Kg 137 49 20

Lab Sample ID: LB3 180-129253/1-A

Matrix: Solid

Analysis Batch: 129476

LB3 LB3

ND

140

MDL Unit Analyte Result Qualifier RL D Prepared Analyzed Dil Fac Sulfate 5.84 10 mg/Kg 12/30/14 01:21

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Client Sample ID: SED-102

Prep Type: Soluble

Prep Type: Soluble

10

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: LCS 180-129253/2-A

TestAmerica Job ID: 180-39575-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Client Sample ID: Lab Control Sample

%Rec.

Prep Type: Soluble

Prep Batch: 113508

Prep Batch: 113508

Prep Batch: 113508

Prep Batch: 113508

Analysis Batch: 129476

Matrix: Solid

Spike Added Result Qualifier Limits Analyte Unit D %Rec 500 Sulfate 515 mg/Kg 103 90 - 110

Method: 8315A - Carbonyl Compounds (HPLC)

Lab Sample ID: MB 640-113508/1-A Client Sample ID: Method Blank Prep Type: Total/NA

LCS LCS

Matrix: Water

Analysis Batch: 113556 мв мв

Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac 50 5.0 ug/L 12/05/14 10:51 12/08/14 12:30 Formaldehyde ND

Lab Sample ID: LCS 640-113508/2-A Client Sample ID: Lab Control Sample Prep Type: Total/NA

Matrix: Water

Analysis Batch: 113556

LCS LCS Spike Analyte Added Result Qualifier Unit Formaldehyde 150 147 ug/L 73 - 133

Lab Sample ID: LCSD 640-113508/3-A Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA

Matrix: Water

Analysis Batch: 113556

LCSD LCSD Spike %Rec. RPD Analyte Added Result Qualifier Unit D %Rec Limits **RPD** Limit 150 154 103 Formaldehyde 20 ug/L 73 - 133

Lab Sample ID: 180-39575-10 MS Client Sample ID: SG-4 Prep Type: Total/NA

Matrix: Water

Analysis Batch: 113556

Sample Sample Spike MS MS %Rec. Result Qualifier Added Result Qualifier Limits Analyte Unit D %Rec 8.5 150 Formaldehyde J 152 ug/L 96 40 - 142

Lab Sample ID: 180-39575-10 MSD

Matrix: Water

Analysis Batch: 113556 **Prep Batch: 113508** MSD MSD Sample Sample Spike %Rec. RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Formaldehyde 8.5 J 150 154 ug/L 97 40 - 142 26

Lab Sample ID: MB 640-113540/1-A

Matrix: Solid

Analysis Batch: 113605

MB MB

Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac Formaldehyde ND 100 78 ug/Kg 12/08/14 07:45 12/10/14 09:02

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Prep Type: Total/NA

Client Sample ID: SG-4

Client Sample ID: Method Blank

Prep Type: Total/NA Prep Batch: 113540

12/30/2014

10

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Method: 8315A - Carbonyl Compounds (HPLC) (Continued)

1100

ND

Lab Sample ID: LCS 640-113540/2-A			Client Sample	ID: Lab Control Sample
Matrix: Solid				Prep Type: Total/NA
Analysis Batch: 113605				Prep Batch: 113540
	Spike	LCS LCS		%Rec.
			_ ~	

Added Analyte Result Qualifier Unit %Rec Limits Formaldehyde 743 554 ug/Kg 75 70 - 141

Lab Sample ID: LCSD 640-113540/3-A Client Sample ID: Lab Control Sample Dup **Matrix: Solid** Prep Type: Total/NA Analysis Batch: 113605 Prep Batch: 113540 LCSD LCSD Spike Result Qualifier Analyte Added Unit %Rec Limits RPD Limit Formaldehyde 739 593 ug/Kg 80 70 - 141 20

Lab Sample ID: 180-39575-4 MS Client Sample ID: SED-102 **Matrix: Solid** Prep Type: Total/NA Analysis Batch: 113605 Prep Batch: 113540 MS MS %Rec. Sample Sample Spike Result Qualifier Added Result Qualifier Unit D %Rec Limits

1150 F1

ug/Kg

1010

Lab Sample ID: 180-39575-4 MSD Client Sample ID: SED-102 **Matrix: Solid** Prep Type: Total/NA Analysis Batch: 113605 Prep Batch: 113540 Sample Sample Spike MSD MSD %Rec. RPD Result Qualifier Added Analyte Result Qualifier Unit %Rec Limits Limit 1100 1020 1160 F1 10 Formaldehyde ug/Kg 18 - 153 22

Method: In-House - Sulfonic Acids by LCMS/MS

Lab Sample ID: MB 200-81831/1-A Client Sample ID: Method Blank **Matrix: Solid** Prep Type: Total/NA

Analysis Batch: 81860

Formaldehyde

MB MB RL Result Qualifier RL Unit D Prepared Dil Fac Analyte Analyzed 20 m-Benzenedisulfonic acid ND 20 ug/Kg 12/08/14 15:50 12/09/14 19:39 2 20 p-Phenolsulfonic acid ND 20 ug/Kg 12/08/14 15:50 12/09/14 19:39 2 ND 20 Benzenesulfonic acid 20 ug/Kg 12/08/14 15:50 12/09/14 19:39 2 Resorcinol ND 20 20 ug/Kg 12/08/14 15:50 12/09/14 19:39 2

Lab Sample ID: LCS 200-81831/3-A Client Sample ID: Lab Control Sample

60

60 ug/Kg

2,3',4-Trihydroxydiphenyl

Matrix: Solid Prep Type: Total/NA **Analysis Batch: 81860** Prep Batch: 81831

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	99.6	96.0		ug/Kg		96	60 - 140	
p-Phenolsulfonic acid	99.6	104		ug/Kg		104	60 - 140	
Benzenesulfonic acid	99.6	68.2		ug/Kg		68	60 - 140	
Resorcinol	99.6	135		ug/Kg		135	60 - 140	
2,3',4-Trihydroxydiphenyl	99.6	118	*	ug/Kg		118	10 - 110	

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12/30/2014

Prep Batch: 81831

12/09/14 19:39

12/08/14 15:50

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Client Sample ID: SED-103

Prep Type: Total/NA

Prep Batch: 81831

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Lab Sample ID: LLCS 200-81831/2-A **Client Sample ID: Lab Control Sample Matrix: Solid** Prep Type: Total/NA **Analysis Batch: 81860** Prep Batch: 81831 Snike LICS LICS %Rec

ı		Opino	LLOO	LLUU				/iiicc.	
	Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
	m-Benzenedisulfonic acid	20.0	ND		ug/Kg		67	60 - 140	
	p-Phenolsulfonic acid	20.0	ND		ug/Kg		72	60 - 140	
	Benzenesulfonic acid	20.0	ND	*	ug/Kg		6	60 - 140	
	Resorcinol	20.0	ND		ug/Kg		86	60 - 140	
	2,3',4-Trihydroxydiphenyl	20.0	ND		ug/Kg		62	10 - 110	

Lab Sample ID: 180-39575-2 MS

Matrix: Solid

Analysis Batch: 81860									Prep	Batch: 81831
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Resorcinol	ND		1940	ND	F1	ug/Kg		0	60 - 140	
2,3',4-Trihydroxydiphenyl	ND	*	1940	ND	F1	ug/Kg		0	10 - 110	

Lab Sample ID: 180-39575-2 MS Client Sample ID: SED-103 **Matrix: Solid** Prep Type: Total/NA

Analysis Batch: 81860 Prep Batch: 81831

	Sample	Sample	Бріке	IVIO	IVIS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	ND		97.1	ND	F1	ug/Kg		0	60 - 140	
p-Phenolsulfonic acid	ND		97.1	ND	F1	ug/Kg		0	60 - 140	
Benzenesulfonic acid	ND	*	97.1	ND	F1	ug/Kg		0	60 - 140	

Lab Sample ID: 180-39575-4 MS Client Sample ID: SED-102 Matrix: Solid Prep Type: Total/NA

Analysis Batch: 81860

Sample Sample Spike MS MS %Rec. Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits D ND 1990 ND F1 Resorcinol ug/Kg 0 60 - 140 2,3',4-Trihydroxydiphenyl ND * 1990 ND F1 ug/Kg 0 10 - 110

Lab Sample ID: 180-39575-4 MS Client Sample ID: SED-102

Matrix: Solid Prep Type: Total/NA **Analysis Batch: 81860** Prep Batch: 81831

	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
m-Benzenedisulfonic acid	400		99.6	568	4	ug/Kg		164	60 - 140		_
p-PhenoIsulfonic acid	ND		99.6	111		ug/Kg		111	60 - 140		
Benzenesulfonic acid	ND	*	99.6	37.6	F1	ug/Kg		38	60 - 140		

Lab Sample ID: 180-39575-4 MSD

Matrix: Solid

Analysis Batch: 81860									Prep	Batch:	81831
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Resorcinol	ND		1970	ND	F1	ug/Kg		0	60 - 140	NC	50
2,3',4-Trihydroxydiphenyl	ND	*	1970	ND	F1	ug/Kg		0	10 - 110	NC	50

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Client Sample ID: SED-102

Prep Type: Total/NA

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Lab Sample ID: 180-39575-4 MSD

Matrix: Solid

Analysis Batch: 81860

Client Sample ID: SED-102 Prep Type: Total/NA

Prep Type: Total/NA Prep Batch: 81831

-	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
m-Benzenedisulfonic acid	400		98.6	530	4	ug/Kg		127	60 - 140	7	50
p-Phenolsulfonic acid	ND		98.5	58.3	F1 F2	ug/Kg		59	60 - 140	62	50
Benzenesulfonic acid	ND	*	98.5	38.6	F1	ug/Kg		39	60 - 140	3	50

Lab Sample ID: 180-39575-6 MS

Matrix: Solid

Analysis Batch: 81860

Client Sample ID: SED-101
Prep Type: Total/NA

Prep Batch: 81831

s	ample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	81000	E	98.8	85800	E 4	ug/Kg		4529	60 - 140	
p-Phenolsulfonic acid	7200		1970	8840		ug/Kg		83	60 - 140	
Benzenesulfonic acid	850	*	98.7	925	4	ug/Kg		77	60 - 140	
Resorcinol	ND		1970	ND	F1	ug/Kg		0	60 - 140	
2,3',4-Trihydroxydiphenyl	ND	*	1970	ND	F1	ug/Kg		0	10 - 110	

Lab Sample ID: 180-39575-7 MS

Matrix: Solid

Analysis Batch: 81860

Client Sample ID: DUP120314
Prep Type: Total/NA

Prep Batch: 81831

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	84000	E	98.7	93600	E 4	ug/Kg		9251	60 - 140	
p-Phenolsulfonic acid	7400		1970	9600		ug/Kg		109	60 - 140	
Benzenesulfonic acid	870	*	98.6	1050	4	ug/Kg		175	60 - 140	
Resorcinol	ND		1970	636	F1	ug/Kg		32	60 - 140	
2,3',4-Trihydroxydiphenyl	ND	*	1970	ND	F1	ug/Kg		0	10 - 110	

Lab Sample ID: MB 200-81835/1-A

Matrix: Water

Analysis Batch: 81886

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 81835

	MB	MB						-	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	ND		50	18	ug/L		12/09/14 15:47	12/10/14 12:53	10
p-Phenolsulfonic acid	ND		50	8.4	ug/L		12/09/14 15:47	12/10/14 12:53	10
Benzenesulfonic acid	ND		50	7.0	ug/L		12/09/14 15:47	12/10/14 12:53	10
Resorcinol	ND		50	5.9	ug/L		12/09/14 15:47	12/10/14 12:53	10
2,3',4-Trihydroxydiphenyl	ND		50	16	ug/L		12/09/14 15:47	12/10/14 12:53	10

Lab Sample ID: LCS 200-81835/3-A

Matrix: Water

Analysis Batch: 81886

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 81835

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	1000	1040		ug/L		104	60 - 140	
p-Phenolsulfonic acid	1000	1060		ug/L		106	60 - 140	
Benzenesulfonic acid	1000	849		ug/L		85	60 - 140	
Resorcinol	1000	1170		ug/L		117	60 - 140	
2,3',4-Trihydroxydiphenyl	1000	1070		ug/L		107	10 - 110	

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Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Prep Type: Total/NA

Client Sample ID: Lab Control Sample

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Lab Sample ID: LLCS 200-81835/2-A **Matrix: Water**

Analysis Batch: 81886

Prep Batch: 81835 Spike LLCS LLCS Added Analyte Result Qualifier %Rec Limits Unit 50.0 m-Benzenedisulfonic acid 54.6 ug/L 109 60 - 140 50.0 ug/L p-PhenoIsulfonic acid 29.8 J 60 60 - 140 50.0 Benzenesulfonic acid 44.6 J ug/L 89 60 - 140Resorcinol 50.0 39.9 J ug/L 80 60 - 140 2,3',4-Trihydroxydiphenyl 50.0 10 - 110

41.4 J

ug/L

Lab Sample ID: 180-39575-1 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SW-5_LANGAN Prep Type: Total/NA Prep Batch: 81835

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	890		1000	2010		ug/L		112	60 - 140	·
p-Phenolsulfonic acid	97		1000	1400		ug/L		130	60 - 140	
Benzenesulfonic acid	ND		1000	772		ug/L		77	60 - 140	
Resorcinol	ND		1000	1100		ug/L		110	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	947		ug/L		95	10 - 110	

Lab Sample ID: 180-39575-3 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SW-4_LANGAN

Prep Type: Total/NA Prep Batch: 81835

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	550		1000	1640		ug/L		109	60 - 140	
p-Phenolsulfonic acid	73		1000	1490	F1	ug/L		141	60 - 140	
Benzenesulfonic acid	ND		1000	865		ug/L		86	60 - 140	
Resorcinol	ND		1000	1150		ug/L		115	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	1080		ug/L		108	10 _ 110	

Lab Sample ID: 180-39575-5 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SW-3_LANGAN

Prep Type: Total/NA

Prep Batch: 81835

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	2300		1000	3360		ug/L		103	60 - 140	
p-Phenolsulfonic acid	270		1000	1470		ug/L		120	60 - 140	
Benzenesulfonic acid	12	J	1000	711		ug/L		70	60 - 140	
Resorcinol	21	J	1000	1140		ug/L		111	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	1140	F1	ug/L		114	10 _ 110	

Lab Sample ID: 180-39575-8 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SG-7 Prep Type: Total/NA Prep Batch: 81835

Allaryolo Batolli o 1000										Daton. O 1000
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	440		1000	1450		ug/L		101	60 - 140	
p-Phenolsulfonic acid	45	J	1000	1270		ug/L		122	60 - 140	
Benzenesulfonic acid	ND		1000	655		ug/L		66	60 - 140	
Resorcinol	ND		1000	1080		ug/L		108	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	1160	F1	ug/L		116	10 - 110	

TestAmerica Pittsburgh

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Lab Sample ID: 180-39575-9 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SG-5 Prep Type: Total/NA Prep Batch: 81835

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	2300		1000	3390		ug/L		111	60 - 140	
p-Phenolsulfonic acid	210		1000	1400		ug/L		119	60 - 140	
Benzenesulfonic acid	13	J	1000	698		ug/L		68	60 - 140	
Resorcinol	170		1000	1230		ug/L		106	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	1010		ug/L		101	10 - 110	

Lab Sample ID: 180-39575-10 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SG-4 Prep Type: Total/NA

Prep Batch: 81835

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	2700		1000	3520		ug/L		87	60 - 140	
p-Phenolsulfonic acid	220		1000	1550		ug/L		133	60 - 140	
Benzenesulfonic acid	23	J	1000	764		ug/L		74	60 - 140	
Resorcinol	420		1000	1330		ug/L		91	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	971		ug/L		97	10 - 110	

Lab Sample ID: 180-39575-10 MSD

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SG-4 Prep Type: Total/NA

Prep Batch: 81835

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
m-Benzenedisulfonic acid	2700		1000	3630		ug/L		98	60 - 140	3	50
p-Phenolsulfonic acid	220		1000	1590		ug/L		136	60 - 140	2	50
Benzenesulfonic acid	23	J	1000	720		ug/L		70	60 - 140	6	50
Resorcinol	420		1000	1360		ug/L		94	60 - 140	3	50
2,3',4-Trihydroxydiphenyl	ND		1000	1080		ug/L		108	10 - 110	10	50

Lab Sample ID: 180-39575-11 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SG-3 Prep Type: Total/NA Prep Batch: 81835

	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
m-Benzenedisulfonic acid	3100		1000	4240		ug/L		117	60 - 140
p-Phenolsulfonic acid	160		1000	1350		ug/L		119	60 _ 140
Benzenesulfonic acid	27	J	1000	716		ug/L		69	60 _ 140
Resorcinol	440		1000	1440		ug/L		100	60 _ 140
2,3',4-Trihydroxydiphenyl	ND		1000	977		ug/L		98	10 - 110

Lab Sample ID: 180-39575-12 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: DUP120414

Prep Type: Total/NA

Prep Batch: 81835

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	2600		1000	3910		ug/L		130	60 - 140	
p-Phenolsulfonic acid	160		1000	1620	F1	ug/L		146	60 - 140	
Benzenesulfonic acid	20	J	1000	840		ug/L		82	60 - 140	
Resorcinol	430		1000	1540		ug/L		112	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	1220	F1	ug/L		122	10 - 110	

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

ND

Lab Sample ID: 180-39575-13 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SG-8 Prep Type: Total/NA Prep Batch: 81835

-1											
		Sample	Sample	Spike	MS	MS				%Rec.	
	Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
	m-Benzenedisulfonic acid	190		1000	1240		ug/L		104	60 - 140	
	p-Phenolsulfonic acid	94		1000	1230		ug/L		113	60 - 140	
	Benzenesulfonic acid	ND		1000	649		ug/L		65	60 - 140	
İ	Resorcinol	540		1000	1490		ug/L		95	60 - 140	

1020

ug/L

102

10 - 110

1000

Lab Sample ID: 180-39575-14 MS

Matrix: Water

Analysis Batch: 81886

2,3',4-Trihydroxydiphenyl

Client Sample ID: SW-1 Prep Type: Total/NA Prep Batch: 81835

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	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	88		1000	1110		ug/L		102	60 - 140	
p-Phenolsulfonic acid	ND		1000	1180		ug/L		118	60 - 140	
Benzenesulfonic acid	ND		1000	663		ug/L		66	60 - 140	
Resorcinol	450		1000	1370		ug/L		92	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	697		ug/L		70	10 - 110	

Lab Sample ID: 180-39575-15 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SG-2 Prep Type: Total/NA

Prep Batch: 81835

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	88		1000	1160		ug/L		107	60 - 140	
p-Phenolsulfonic acid	ND		1000	1220		ug/L		122	60 - 140	
Benzenesulfonic acid	ND		1000	661		ug/L		66	60 - 140	
Resorcinol	390		1000	1310		ug/L		92	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	840		ug/L		84	10 - 110	

Lab Sample ID: 180-39575-16 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SH-1 Prep Type: Total/NA Prep Batch: 81835

_	Sample S	Sample	Spike	MS	MS				%Rec.
Analyte	Result (Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
m-Benzenedisulfonic acid	90		1000	1160		ug/L		107	60 - 140
p-Phenolsulfonic acid	ND		1000	1180		ug/L		118	60 - 140
Benzenesulfonic acid	ND		1000	665		ug/L		66	60 - 140
Resorcinol	350		1000	1380		ug/L		103	60 - 140
2,3',4-Trihydroxydiphenyl	ND		1000	934		ug/L		93	10 - 110

Lab Sample ID: 180-39575-17 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SG-1 Prep Type: Total/NA Prep Batch: 81835

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	81		1000	1160		ug/L		108	60 - 140	
p-Phenolsulfonic acid	ND		1000	1200		ug/L		120	60 - 140	
Benzenesulfonic acid	ND		1000	667		ug/L		67	60 - 140	
Resorcinol	ND		1000	979		ug/L		98	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	1020		ug/L		102	10 - 110	
	m-Benzenedisulfonic acid p-Phenolsulfonic acid Benzenesulfonic acid Resorcinol	AnalyteResultm-Benzenedisulfonic acid81p-Phenolsulfonic acidNDBenzenesulfonic acidNDResorcinolND	m-Benzenedisulfonic acid 81 p-Phenolsulfonic acid ND Benzenesulfonic acid ND Resorcinol ND	Analyte Result Qualifier Added m-Benzenedisulfonic acid 81 1000 p-Phenolsulfonic acid ND 1000 Benzenesulfonic acid ND 1000 Resorcinol ND 1000	Analyte Result Qualifier Added Result m-Benzenedisulfonic acid 81 1000 1160 p-Phenolsulfonic acid ND 1000 1200 Benzenesulfonic acid ND 1000 667 Resorcinol ND 1000 979	Analyte Result Qualifier Added Result Qualifier m-Benzenedisulfonic acid 81 1000 1160 p-Phenolsulfonic acid ND 1000 1200 Benzenesulfonic acid ND 1000 667 Resorcinol ND 1000 979	Analyte Result Qualifier Added Result Qualifier Unit m-Benzenedisulfonic acid 81 1000 1160 ug/L p-Phenolsulfonic acid ND 1000 1200 ug/L Benzenesulfonic acid ND 1000 667 ug/L Resorcinol ND 1000 979 ug/L	Analyte Result Qualifier Added Result Qualifier Unit D m-Benzenedisulfonic acid 81 1000 1160 ug/L ug/L p-Phenolsulfonic acid ND 1000 1200 ug/L Benzenesulfonic acid ND 1000 667 ug/L Resorcinol ND 1000 979 ug/L	Analyte Result Qualifier Added Result Qualifier Unit D %Rec m-Benzenedisulfonic acid 81 1000 1160 ug/L 108 p-Phenolsulfonic acid ND 1000 1200 ug/L 120 Benzenesulfonic acid ND 1000 667 ug/L 67 Resorcinol ND 1000 979 ug/L 98	Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits m-Benzenedisulfonic acid 81 1000 1160 ug/L 108 60 - 140 p-Phenolsulfonic acid ND 1000 1200 ug/L 120 60 - 140 Benzenesulfonic acid ND 1000 667 ug/L 67 60 - 140 Resorcinol ND 1000 979 ug/L 98 60 - 140

Client: ARCADIS U.S. Inc Project/Site: INDSPEC, Petrolia PA

Method: In-House - Sulfonic Acids by LCMS/MS (Continued)

Lab Sample ID: 180-39575-18 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SG-6 Prep Type: Total/NA Prep Batch: 81835

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	81		1000	1120		ug/L		104	60 - 140	
p-Phenolsulfonic acid	ND		1000	1290		ug/L		129	60 - 140	
Benzenesulfonic acid	ND		1000	662		ug/L		66	60 - 140	
Resorcinol	ND		1000	990		ug/L		99	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	924		ug/L		92	10 - 110	

Lab Sample ID: 180-39575-19 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SW-2_LANGAN Prep Type: Total/NA

Prep Batch: 81835

-	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	86		1000	1160		ug/L		108	60 - 140	
p-Phenolsulfonic acid	ND		1000	1140		ug/L		114	60 - 140	
Benzenesulfonic acid	ND		1000	666		ug/L		67	60 - 140	
Resorcinol	ND		1000	1010		ug/L		101	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	932		ug/L		93	10 - 110	

Lab Sample ID: 180-39575-20 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: SW-1_LANGAN

Prep Type: Total/NA Prep Batch: 81835

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	81		1000	1120		ug/L		103	60 - 140	
p-Phenolsulfonic acid	ND		1000	1180		ug/L		118	60 - 140	
Benzenesulfonic acid	ND		1000	652		ug/L		65	60 - 140	
Resorcinol	ND		1000	964		ug/L		96	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	939		ug/L		94	10 - 110	

Lab Sample ID: 180-39575-21 MS

Matrix: Water

Analysis Batch: 81886

Client Sample ID: FB120414

Prep Batch: 81835

Allalysis Batch. 01000									1 100	Datell. 0 1000
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Benzenedisulfonic acid	ND		1000	949		ug/L		95	60 - 140	
p-Phenolsulfonic acid	ND		1000	1060		ug/L		106	60 - 140	
Benzenesulfonic acid	ND		1000	908		ug/L		91	60 - 140	
Resorcinol	ND		1000	973		ug/L		97	60 - 140	
2,3',4-Trihydroxydiphenyl	ND		1000	1020		ug/L		102	10 - 110	

Method: 2540G - SM 2540G

Lab Sample ID: 180-39575-4 DU

Matrix: Solid

Analysis Batch: 127602

Client Sample ID: SED-102 Prep Type: Total/NA

	Sample	Sample	DU	DU					RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D		RPD	Limit
Percent Moisture	27		29		%			7	20
Percent Solids	73		71		%			3	20

TestAmerica Pittsburgh

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Prep Type: Total/NA

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

GC/MS VOA

Analysis Batch: 127750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-2	SED-103	Total/NA	Solid	8260B	127772
180-39575-4	SED-102	Total/NA	Solid	8260B	127772
180-39575-4 MS	SED-102	Total/NA	Solid	8260B	127772
180-39575-4 MSD	SED-102	Total/NA	Solid	8260B	127772
180-39575-6	SED-101	Total/NA	Solid	8260B	127772
180-39575-7	DUP120314	Total/NA	Solid	8260B	127772
LCS 180-127772/2-A	Lab Control Sample	Total/NA	Solid	8260B	127772
MB 180-127772/1-A	Method Blank	Total/NA	Solid	8260B	127772

Prep Batch: 127772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-2	SED-103	Total/NA	Solid	5030B	-
180-39575-4	SED-102	Total/NA	Solid	5030B	
180-39575-4 MS	SED-102	Total/NA	Solid	5030B	
180-39575-4 MSD	SED-102	Total/NA	Solid	5030B	
180-39575-6	SED-101	Total/NA	Solid	5030B	
180-39575-7	DUP120314	Total/NA	Solid	5030B	
LCS 180-127772/2-A	Lab Control Sample	Total/NA	Solid	5030B	
MB 180-127772/1-A	Method Blank	Total/NA	Solid	5030B	

Analysis Batch: 128326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-10	SG-4	Total/NA	Water	8260C	_
180-39575-10 MS	SG-4	Total/NA	Water	8260C	
180-39575-10 MSD	SG-4	Total/NA	Water	8260C	
180-39575-22	TRIP BLANK	Total/NA	Water	8260C	
LCS 180-128326/10	Lab Control Sample	Total/NA	Water	8260C	
MB 180-128326/7	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 128456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-16	SH-1	Total/NA	Water	8260C	
180-39575-17	SG-1	Total/NA	Water	8260C	
180-39575-18	SG-6	Total/NA	Water	8260C	
180-39575-19	SW-2_LANGAN	Total/NA	Water	8260C	
180-39575-20	SW-1_LANGAN	Total/NA	Water	8260C	
LCS 180-128456/10	Lab Control Sample	Total/NA	Water	8260C	
MB 180-128456/7	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 128468

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
180-39575-1	SW-5_LANGAN	Total/NA	Water	8260C	<u> </u>
180-39575-1 MS	SW-5_LANGAN	Total/NA	Water	8260C	
180-39575-1 MSD	SW-5_LANGAN	Total/NA	Water	8260C	
180-39575-3	SW-4_LANGAN	Total/NA	Water	8260C	
180-39575-5	SW-3_LANGAN	Total/NA	Water	8260C	
180-39575-8	SG-7	Total/NA	Water	8260C	
180-39575-9	SG-5	Total/NA	Water	8260C	
180-39575-11	SG-3	Total/NA	Water	8260C	
180-39575-12	DUP120414	Total/NA	Water	8260C	
180-39575-13	SG-8	Total/NA	Water	8260C	

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

GC/MS VOA (Continued)

Analysis Batch: 128468 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-14	SW-1	Total/NA	Water	8260C	
180-39575-15	SG-2	Total/NA	Water	8260C	
180-39575-21	FB120414	Total/NA	Water	8260C	
LCS 180-128468/8	Lab Control Sample	Total/NA	Water	8260C	
MB 180-128468/5	Method Blank	Total/NA	Water	8260C	

GC/MS Semi VOA

Prep Batch: 127659

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-1	SW-5_LANGAN	Total/NA	Water	3520C	
180-39575-3	SW-4_LANGAN	Total/NA	Water	3520C	
180-39575-5	SW-3_LANGAN	Total/NA	Water	3520C	
180-39575-8	SG-7	Total/NA	Water	3520C	
180-39575-9	SG-5	Total/NA	Water	3520C	
LCS 180-127659/2-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 180-127659/3-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 180-127659/1-A	Method Blank	Total/NA	Water	3520C	

Prep Batch: 127798

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
180-39575-10	SG-4	Total/NA	Water	3520C	
180-39575-10 MS	SG-4	Total/NA	Water	3520C	
180-39575-10 MSD	SG-4	Total/NA	Water	3520C	
180-39575-11	SG-3	Total/NA	Water	3520C	
180-39575-12	DUP120414	Total/NA	Water	3520C	
180-39575-13	SG-8	Total/NA	Water	3520C	
180-39575-14	SW-1	Total/NA	Water	3520C	
180-39575-15	SG-2	Total/NA	Water	3520C	
180-39575-16	SH-1	Total/NA	Water	3520C	
180-39575-17	SG-1	Total/NA	Water	3520C	
180-39575-18	SG-6	Total/NA	Water	3520C	
180-39575-19	SW-2_LANGAN	Total/NA	Water	3520C	
180-39575-20	SW-1_LANGAN	Total/NA	Water	3520C	
180-39575-21	FB120414	Total/NA	Water	3520C	
LCS 180-127798/2-A	Lab Control Sample	Total/NA	Water	3520C	
MB 180-127798/1-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 127827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-1	SW-5_LANGAN	Total/NA	Water	8270C LL	127659
180-39575-3	SW-4_LANGAN	Total/NA	Water	8270C LL	127659
180-39575-5	SW-3_LANGAN	Total/NA	Water	8270C LL	127659
180-39575-8	SG-7	Total/NA	Water	8270C LL	127659
180-39575-9	SG-5	Total/NA	Water	8270C LL	127659
LCS 180-127659/2-A	Lab Control Sample	Total/NA	Water	8270C LL	127659
LCSD 180-127659/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	127659
MB 180-127659/1-A	Method Blank	Total/NA	Water	8270C LL	127659

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

GC/MS Semi VOA (Continued)

Analysis Batch: 128007

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-10	SG-4	Total/NA	Water	8270C LL	127798
180-39575-10 MS	SG-4	Total/NA	Water	8270C LL	127798
180-39575-10 MSD	SG-4	Total/NA	Water	8270C LL	127798
180-39575-11	SG-3	Total/NA	Water	8270C LL	127798
180-39575-12	DUP120414	Total/NA	Water	8270C LL	127798
180-39575-13	SG-8	Total/NA	Water	8270C LL	127798
180-39575-14	SW-1	Total/NA	Water	8270C LL	127798
180-39575-15	SG-2	Total/NA	Water	8270C LL	127798
180-39575-16	SH-1	Total/NA	Water	8270C LL	127798
180-39575-17	SG-1	Total/NA	Water	8270C LL	127798
180-39575-18	SG-6	Total/NA	Water	8270C LL	127798
180-39575-19	SW-2_LANGAN	Total/NA	Water	8270C LL	127798
180-39575-20	SW-1_LANGAN	Total/NA	Water	8270C LL	127798
180-39575-21	FB120414	Total/NA	Water	8270C LL	127798
LCS 180-127798/2-A	Lab Control Sample	Total/NA	Water	8270C LL	127798
MB 180-127798/1-A	Method Blank	Total/NA	Water	8270C LL	127798

HPLC/IC

Prep Batch: 113508

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-1	SW-5_LANGAN	Total/NA	Water	8315_W_Prep	
180-39575-3	SW-4_LANGAN	Total/NA	Water	8315_W_Prep	
180-39575-5	SW-3_LANGAN	Total/NA	Water	8315_W_Prep	
180-39575-8	SG-7	Total/NA	Water	8315_W_Prep	
180-39575-9	SG-5	Total/NA	Water	8315_W_Prep	
180-39575-10	SG-4	Total/NA	Water	8315_W_Prep	
180-39575-10 MS	SG-4	Total/NA	Water	8315_W_Prep	
180-39575-10 MSD	SG-4	Total/NA	Water	8315_W_Prep	
180-39575-11	SG-3	Total/NA	Water	8315_W_Prep	
180-39575-12	DUP120414	Total/NA	Water	8315_W_Prep	
180-39575-13	SG-8	Total/NA	Water	8315_W_Prep	
180-39575-14	SW-1	Total/NA	Water	8315_W_Prep	
180-39575-15	SG-2	Total/NA	Water	8315_W_Prep	
180-39575-16	SH-1	Total/NA	Water	8315_W_Prep	
180-39575-17	SG-1	Total/NA	Water	8315_W_Prep	
180-39575-18	SG-6	Total/NA	Water	8315_W_Prep	
180-39575-19	SW-2_LANGAN	Total/NA	Water	8315_W_Prep	
180-39575-20	SW-1_LANGAN	Total/NA	Water	8315_W_Prep	
180-39575-21	FB120414	Total/NA	Water	8315_W_Prep	
LCS 640-113508/2-A	Lab Control Sample	Total/NA	Water	8315_W_Prep	
LCSD 640-113508/3-A	Lab Control Sample Dup	Total/NA	Water	8315_W_Prep	
MB 640-113508/1-A	Method Blank	Total/NA	Water	8315 W Prep	

Prep Batch: 113540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-2	SED-103	Total/NA	Solid	8315_S_Prep	
180-39575-4	SED-102	Total/NA	Solid	8315_S_Prep	
180-39575-4 MS	SED-102	Total/NA	Solid	8315_S_Prep	
180-39575-4 MSD	SED-102	Total/NA	Solid	8315_S_Prep	

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

HPLC/IC (Continued)

Prep Batch: 113540 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-6	SED-101	Total/NA	Solid	8315_S_Prep	
180-39575-7	DUP120314	Total/NA	Solid	8315_S_Prep	
LCS 640-113540/2-A	Lab Control Sample	Total/NA	Solid	8315_S_Prep	
LCSD 640-113540/3-A	Lab Control Sample Dup	Total/NA	Solid	8315_S_Prep	
MB 640-113540/1-A	Method Blank	Total/NA	Solid	8315_S_Prep	

Analysis Batch: 113556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-1	SW-5_LANGAN	Total/NA	Water	8315A	113508
180-39575-3	SW-4_LANGAN	Total/NA	Water	8315A	113508
180-39575-5	SW-3_LANGAN	Total/NA	Water	8315A	113508
180-39575-8	SG-7	Total/NA	Water	8315A	113508
180-39575-9	SG-5	Total/NA	Water	8315A	113508
180-39575-10	SG-4	Total/NA	Water	8315A	113508
180-39575-10 MS	SG-4	Total/NA	Water	8315A	113508
180-39575-10 MSD	SG-4	Total/NA	Water	8315A	113508
180-39575-11	SG-3	Total/NA	Water	8315A	113508
180-39575-12	DUP120414	Total/NA	Water	8315A	113508
180-39575-13	SG-8	Total/NA	Water	8315A	113508
180-39575-14	SW-1	Total/NA	Water	8315A	113508
180-39575-15	SG-2	Total/NA	Water	8315A	113508
180-39575-16	SH-1	Total/NA	Water	8315A	113508
180-39575-17	SG-1	Total/NA	Water	8315A	113508
180-39575-18	SG-6	Total/NA	Water	8315A	113508
180-39575-19	SW-2_LANGAN	Total/NA	Water	8315A	113508
180-39575-20	SW-1_LANGAN	Total/NA	Water	8315A	113508
180-39575-21	FB120414	Total/NA	Water	8315A	113508
LCS 640-113508/2-A	Lab Control Sample	Total/NA	Water	8315A	113508
LCSD 640-113508/3-A	Lab Control Sample Dup	Total/NA	Water	8315A	113508
MB 640-113508/1-A	Method Blank	Total/NA	Water	8315A	113508

Analysis Batch: 113605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-2	SED-103	Total/NA	Solid	8315A	113540
180-39575-4	SED-102	Total/NA	Solid	8315A	113540
180-39575-4 MS	SED-102	Total/NA	Solid	8315A	113540
180-39575-4 MSD	SED-102	Total/NA	Solid	8315A	113540
180-39575-6	SED-101	Total/NA	Solid	8315A	113540
180-39575-7	DUP120314	Total/NA	Solid	8315A	113540
LCS 640-113540/2-A	Lab Control Sample	Total/NA	Solid	8315A	113540
LCSD 640-113540/3-A	Lab Control Sample Dup	Total/NA	Solid	8315A	113540
MB 640-113540/1-A	Method Blank	Total/NA	Solid	8315A	113540

Analysis Batch: 128954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-1	SW-5_LANGAN	Total/NA	Water	300.0	_
180-39575-3	SW-4_LANGAN	Total/NA	Water	300.0	
180-39575-5	SW-3_LANGAN	Total/NA	Water	300.0	
180-39575-9	SG-5	Total/NA	Water	300.0	
180-39575-11	SG-3	Total/NA	Water	300.0	
180-39575-12	DUP120414	Total/NA	Water	300.0	

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

HPLC/IC (Continued)

Analysis Batch: 128954 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-13	SG-8	Total/NA	Water	300.0	
180-39575-14	SW-1	Total/NA	Water	300.0	
LCS 180-128954/16	Lab Control Sample	Total/NA	Water	300.0	
MB 180-128954/17	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 129078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-8	SG-7	Total/NA	Water	300.0	
180-39575-10	SG-4	Total/NA	Water	300.0	
180-39575-10 MS	SG-4	Total/NA	Water	300.0	
180-39575-10 MSD	SG-4	Total/NA	Water	300.0	
180-39575-15	SG-2	Total/NA	Water	300.0	
180-39575-16	SH-1	Total/NA	Water	300.0	
180-39575-17	SG-1	Total/NA	Water	300.0	
180-39575-18	SG-6	Total/NA	Water	300.0	
180-39575-19	SW-2_LANGAN	Total/NA	Water	300.0	
180-39575-20	SW-1_LANGAN	Total/NA	Water	300.0	
180-39575-21	FB120414	Total/NA	Water	300.0	
LCS 180-129078/5	Lab Control Sample	Total/NA	Water	300.0	
MB 180-129078/6	Method Blank	Total/NA	Water	300.0	

Leach Batch: 129253

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-2	SED-103	Soluble	Solid	DI Leach	
180-39575-4	SED-102	Soluble	Solid	DI Leach	
180-39575-4 MS	SED-102	Soluble	Solid	DI Leach	
180-39575-4 MSD	SED-102	Soluble	Solid	DI Leach	
180-39575-6	SED-101	Soluble	Solid	DI Leach	
180-39575-7	DUP120314	Soluble	Solid	DI Leach	
LB3 180-129253/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 180-129253/2-A	Lab Control Sample	Soluble	Solid	DI Leach	

Analysis Batch: 129332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-2	SED-103	Soluble	Solid	300.0	129253
180-39575-4	SED-102	Soluble	Solid	300.0	129253
180-39575-4 MS	SED-102	Soluble	Solid	300.0	129253
180-39575-4 MSD	SED-102	Soluble	Solid	300.0	129253
LB3 180-129253/1-A	Method Blank	Soluble	Solid	300.0	129253
LCS 180-129253/2-A	Lab Control Sample	Soluble	Solid	300.0	129253

Analysis Batch: 129476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-6	SED-101	Soluble	Solid	300.0	129253
180-39575-7	DUP120314	Soluble	Solid	300.0	129253
LB3 180-129253/1-A	Method Blank	Soluble	Solid	300.0	129253
LCS 180-129253/2-A	Lab Control Sample	Soluble	Solid	300.0	129253

TestAmerica Pittsburgh

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

LCMS

Prep Batch: 81831

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-2	SED-103	Total/NA	Solid	In House	_
180-39575-2 MS	SED-103	Total/NA	Solid	In House	
180-39575-4	SED-102	Total/NA	Solid	In House	
180-39575-4 MS	SED-102	Total/NA	Solid	In House	
180-39575-4 MSD	SED-102	Total/NA	Solid	In House	
180-39575-6	SED-101	Total/NA	Solid	In House	
180-39575-6 MS	SED-101	Total/NA	Solid	In House	
180-39575-7	DUP120314	Total/NA	Solid	In House	
180-39575-7 MS	DUP120314	Total/NA	Solid	In House	
LCS 200-81831/3-A	Lab Control Sample	Total/NA	Solid	In House	
LLCS 200-81831/2-A	Lab Control Sample	Total/NA	Solid	In House	
MB 200-81831/1-A	Method Blank	Total/NA	Solid	In House	

Prep Batch: 81835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
180-39575-1	SW-5_LANGAN	Total/NA	Water	In House	_
180-39575-1 MS	SW-5_LANGAN	Total/NA	Water	In House	
180-39575-3	SW-4_LANGAN	Total/NA	Water	In House	
180-39575-3 MS	SW-4_LANGAN	Total/NA	Water	In House	
180-39575-5	SW-3_LANGAN	Total/NA	Water	In House	
180-39575-5 MS	SW-3_LANGAN	Total/NA	Water	In House	
180-39575-8	SG-7	Total/NA	Water	In House	
180-39575-8 MS	SG-7	Total/NA	Water	In House	
180-39575-9	SG-5	Total/NA	Water	In House	
180-39575-9 MS	SG-5	Total/NA	Water	In House	
180-39575-10	SG-4	Total/NA	Water	In House	
180-39575-10 MS	SG-4	Total/NA	Water	In House	
180-39575-10 MSD	SG-4	Total/NA	Water	In House	
180-39575-11	SG-3	Total/NA	Water	In House	
180-39575-11 MS	SG-3	Total/NA	Water	In House	
180-39575-12	DUP120414	Total/NA	Water	In House	
180-39575-12 MS	DUP120414	Total/NA	Water	In House	
180-39575-13	SG-8	Total/NA	Water	In House	
180-39575-13 MS	SG-8	Total/NA	Water	In House	
180-39575-14	SW-1	Total/NA	Water	In House	
180-39575-14 MS	SW-1	Total/NA	Water	In House	
180-39575-15	SG-2	Total/NA	Water	In House	
180-39575-15 MS	SG-2	Total/NA	Water	In House	
180-39575-16	SH-1	Total/NA	Water	In House	
180-39575-16 MS	SH-1	Total/NA	Water	In House	
180-39575-17	SG-1	Total/NA	Water	In House	
180-39575-17 MS	SG-1	Total/NA	Water	In House	
180-39575-18	SG-6	Total/NA	Water	In House	
180-39575-18 MS	SG-6	Total/NA	Water	In House	
180-39575-19	SW-2_LANGAN	Total/NA	Water	In House	
180-39575-19 MS	SW-2_LANGAN	Total/NA	Water	In House	
180-39575-20	SW-1_LANGAN	Total/NA	Water	In House	
180-39575-20 MS	SW-1_LANGAN	Total/NA	Water	In House	
180-39575-21	FB120414	Total/NA	Water	In House	
180-39575-21 MS	FB120414	Total/NA	Water	In House	
LCS 200-81835/3-A	Lab Control Sample	Total/NA	Water	In House	

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-39575-1

LCMS (Continued)

Prep Batch: 81835 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LLCS 200-81835/2-A	Lab Control Sample	Total/NA	Water	In House	
MB 200-81835/1-A	Method Blank	Total/NA	Water	In House	

Analysis Batch: 81860

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-2	SED-103	Total/NA	Solid	In-House	81831
180-39575-2	SED-103	Total/NA	Solid	In-House	81831
180-39575-2 MS	SED-103	Total/NA	Solid	In-House	81831
180-39575-2 MS	SED-103	Total/NA	Solid	In-House	81831
180-39575-4	SED-102	Total/NA	Solid	In-House	81831
180-39575-4	SED-102	Total/NA	Solid	In-House	81831
180-39575-4 MS	SED-102	Total/NA	Solid	In-House	81831
180-39575-4 MS	SED-102	Total/NA	Solid	In-House	81831
180-39575-4 MSD	SED-102	Total/NA	Solid	In-House	81831
180-39575-4 MSD	SED-102	Total/NA	Solid	In-House	81831
180-39575-6	SED-101	Total/NA	Solid	In-House	81831
180-39575-6	SED-101	Total/NA	Solid	In-House	81831
180-39575-6 MS	SED-101	Total/NA	Solid	In-House	81831
180-39575-7	DUP120314	Total/NA	Solid	In-House	81831
180-39575-7	DUP120314	Total/NA	Solid	In-House	81831
180-39575-7 MS	DUP120314	Total/NA	Solid	In-House	81831
LCS 200-81831/3-A	Lab Control Sample	Total/NA	Solid	In-House	81831
LLCS 200-81831/2-A	Lab Control Sample	Total/NA	Solid	In-House	81831
MB 200-81831/1-A	Method Blank	Total/NA	Solid	In-House	81831

Analysis Batch: 81886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-1	SW-5_LANGAN	Total/NA	Water	In-House	81835
180-39575-1 MS	SW-5_LANGAN	Total/NA	Water	In-House	81835
180-39575-3	SW-4_LANGAN	Total/NA	Water	In-House	81835
180-39575-3 MS	SW-4_LANGAN	Total/NA	Water	In-House	81835
80-39575-5	SW-3_LANGAN	Total/NA	Water	In-House	81835
80-39575-5 MS	SW-3_LANGAN	Total/NA	Water	In-House	81835
180-39575-8	SG-7	Total/NA	Water	In-House	81835
180-39575-8 MS	SG-7	Total/NA	Water	In-House	81835
180-39575-9	SG-5	Total/NA	Water	In-House	81835
180-39575-9 MS	SG-5	Total/NA	Water	In-House	81835
80-39575-10	SG-4	Total/NA	Water	In-House	81835
80-39575-10 MS	SG-4	Total/NA	Water	In-House	81835
80-39575-10 MSD	SG-4	Total/NA	Water	In-House	81835
80-39575-11	SG-3	Total/NA	Water	In-House	81835
80-39575-11 MS	SG-3	Total/NA	Water	In-House	81835
180-39575-12	DUP120414	Total/NA	Water	In-House	81835
80-39575-12 MS	DUP120414	Total/NA	Water	In-House	81835
180-39575-13	SG-8	Total/NA	Water	In-House	81835
180-39575-13 MS	SG-8	Total/NA	Water	In-House	81835
180-39575-14	SW-1	Total/NA	Water	In-House	81835
180-39575-14 MS	SW-1	Total/NA	Water	In-House	81835
180-39575-15	SG-2	Total/NA	Water	In-House	81835
180-39575-15 MS	SG-2	Total/NA	Water	In-House	81835
180-39575-16	SH-1	Total/NA	Water	In-House	81835

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Client: ARCADIS U.S. Inc

TestAmerica Job ID: 180-39575-1 Project/Site: INDSPEC, Petrolia PA

LCMS (Continued)

Analysis Batch: 81886 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-16 MS	SH-1	Total/NA	Water	In-House	81835
180-39575-17	SG-1	Total/NA	Water	In-House	81835
180-39575-17 MS	SG-1	Total/NA	Water	In-House	81835
180-39575-18	SG-6	Total/NA	Water	In-House	81835
180-39575-18 MS	SG-6	Total/NA	Water	In-House	81835
180-39575-19	SW-2_LANGAN	Total/NA	Water	In-House	81835
180-39575-19 MS	SW-2_LANGAN	Total/NA	Water	In-House	81835
180-39575-20	SW-1_LANGAN	Total/NA	Water	In-House	81835
180-39575-20 MS	SW-1_LANGAN	Total/NA	Water	In-House	81835
180-39575-21	FB120414	Total/NA	Water	In-House	81835
180-39575-21 MS	FB120414	Total/NA	Water	In-House	81835
LCS 200-81835/3-A	Lab Control Sample	Total/NA	Water	In-House	81835
LLCS 200-81835/2-A	Lab Control Sample	Total/NA	Water	In-House	81835
MB 200-81835/1-A	Method Blank	Total/NA	Water	In-House	81835

General Chemistry

Analysis Batch: 127602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-39575-2	SED-103	Total/NA	Solid	2540G	_ <u> </u>
180-39575-4	SED-102	Total/NA	Solid	2540G	
180-39575-4 DU	SED-102	Total/NA	Solid	2540G	
180-39575-6	SED-101	Total/NA	Solid	2540G	
180-39575-7	DUP120314	Total/NA	Solid	2540G	

Testamenica Pittsburgh 301 Alpha Drive

Pittsburgh, PA 15238 Phone: 412,963,7058 Fax: 412,963,2470

Chain of Custody Record

THE LEADER IN ENVIRONMENTAL TESTING TestAmerica Laboratories, Inc. **TestAmeric**

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Sample Specific Notes: တ္လ Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) For Lab Use Only Walk-in Client: ab Sampling: Job / SDG No.: Months ₽ Therm ID N Date/Time: Date/Time Date/Time COC No: 180-39575 Chain of Custody Company: Company: Sisposal by Lab Site Contact BONESS, Dave. Received in Laboratory by: Return to Client XXXX XXXX X X X × メ メメ X X 又 × × × X × X RCRA 10V +20 (019 -× × × erform MS / MSD 12-4-14/1725 re any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Regulatory Program: Dw NPDES # of Cont $\tilde{\omega}$ Q Date/Time: Hamish Date/Time: ☐ WORKING DAYS Matrix 3 3 3 द्ध 3 3 K 3 3 Analysis Turnaround Time ٤, Type (C=Comp, G=Grab) Sample TAT if different from Below _ Project Manager: MCMV 1 week ${\mathfrak P}$ P ج P Tel/Fax: 124 741 1200 Sample Time 12/3/m 1722 12/4/m 1020 विश्वाप १८३५ 12/4/14 09.55 12/3/14/1045 Arcadis 0211 MISD 12/3/14/11/40 CALENDAR DAYS **3**6 0111 1112 121 5=NaOH; 6= Other Custody Seal No. Poison B 12/3/W Sample Date Company: Company: Company 5.830 servation Used: 1= Ice, 2= HCf, 3= H2SO4, 4=HNO3; pecial Instructions/QC Requirements & Comments: omments Section if the lab is to dispose of the sample. Chuis Bonessi -netrota angan Congen Sample Identification Sw-5-Langan Client Contact Company Name: Arcalis Address: 6041 Wallaue FA 747 9189 ossible Hazard Identification: Indsple Sity/State/Zip: 1, 20 x for a 9Du 0120314) U D 120414 701-Custody Seals Intact: 103 0 とろって Remoduished by: いアード 56-3 Non-Hazard roject Name: 1 hone: 77. # 0 Site:

Pittsburgh PA 15238 Phone: 412.963.7058 Fax: 412.963.2470

Chain of Custody Record

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THE LEADER IN ENVIRONMENTAL TESTING TestAmerica Laboratories, Inc. **TestAmerica**

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Preservation Used: 1= Ice, 2= HCI; 3= H2SO4; 4=HN03; 5=NaOH; 6= Other	5=NaOH; 6= Other		The state of the s									
Possible Hazard identification: Are any samples from a listed EPA Hazardous Waste? Please	Please List any EPA Waste Codes	odes for th	for the sample in the		ample Disposa	il (A fee n	nay be a	oessess	l if sam	ples are ret	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	1 month)
Comments Section II the lab is to dispose of the sample.	o eccion						į	:				
Non-Hazard Hammable Skin Infant	Poison B	Unknown		1	Return to Clie	<u>ا</u> ب	dsig X	X-Disposal by Lab		Archive for	ror	S
Special instructions/QC Kequirements & Comments:						<i>C</i>	-					
Custody Seals Intact: Tes No	Custody Seal No.:				Cooler	Temp.K	C): 0/4/c		Corrd	r'd:	Therm ID No.	
Chris Bonses	Company:		Date/Time/ 12.4.14	7. R	Received px	///		σ١	Company	How	Date/Time:	P86 M
	.		Date/Time:	<u> </u>	Received by:	6		Ŏ	Cómpany		Date/Mme: /	
	Company:		Date/Time:	<u>K</u>	Received in Laboratory by:	ratory by:		Ŏ_	Company:		Date/Time:	
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TestAmerica Pittsburgh

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Chain of Custody Record	

State Fire Att Spiral state of the Spiral stat		Chain c	Chain of Custody Record	900000	TestAmerica
Pittsburgh, PA 15238 Phone: 412.963.7058 Fax: 412.963.2470	Poquiston Drogram.	L		078500	THE LEADER IN ENVIRONMENTAL TESTING TestAmerica Laboratories, Inc.
Client Contact	- ا	The state of the s	Site Contact? Deliver:	17-14-14	COC No:
Company Name: Arcadis	3.	4		1007	of 2 cocs
	Analysis Turnaroun			┡	Sampler:
Workow PA 1509	CALENDAR DAYS	WORKING DAYS	OV.		For Lab Use Only:
E. 774 7 47	TAT if different t		- \(\rac{1}{N} \)	-	Walk-in Client:
Project Name: The Cool The Lotter	2 weeks	**	28 28		Lab Sampling:
+ MA-2 KM	ケ	Tungan	Dr.C NSD		Job / SDG No.:
PO#	1 day	7	100 2- (
Sample Identification		# of # of Matrix Cont.	/5M/ MMO/0505 MMO/0728 MMO/1046 S POJOHILL		Sample Specific Notes:
SW-5- Langan	8	2			
Sed - 103	2 601	Sed 3	× ×		
Sw-4- Langen	2/3/14 1110 (F	3	× × ×		
sed -102	15/m 1120 C	6.3	×××		
\$5W-3- Langan	-6) Oh h s z	2 6	× × ×		
101-101	1200 C	SE 3	×		
8Dup120314	12/3/14 — C S	8	××		
56-7	3 (522) M/8/21		×		
5(2-2)	पित्राम १८३५ ८-	3	× ×		
SG-4	12/4/14 09.55 E	<u>3</u>	××××	180-39575 075	
Sf -3	12/4/m 1020 E	10 m	XXX	Custody	Custody
Duo 120414	12/4/14 - 6	ر ا	x x X		·
Preservation Used: 1=ice, 2= HCt, 3=H2SO4: 4=HNO3: 5=NaOH; 6= Other	5=NaOH; 6= Other				
PA Hazardous Waste? dispose of the sample.	Please List any EPA Waste Codes for the sample in the	e sample in the	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	d If samples are retained	l longer than 1 month)
Non-Hazard Hammable Skin Irritant	Poison B Unknown	L	Return to Client Abisposal by Lab	ab Archive for	Months
Special Instructions/QC Requirements & Comments:					
Custody Seals Intact:	Custody Seal No.:	5		Corr'd:	Therm ID No.:
quished by:		Date/Time	Received by	South and Oil	Date/Triple: / 1/ (x2)
State Chris Bongs.	adis	12.4.14/1745	Received by:	Company	Date/Time
ত R <u>a</u> inquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Technology Pittems 301 Alpha Brive

Pittsburgh, PA 15238 Phone: 412, 963, 7058 Fax: 412, 963, 2470

Chain of Custody Record

063925

THE LEADER IN ENVIRONMENTAL TESTING TESTANG TestAmerica

Sample Specific Notes: S 2000 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month For Lab Use Only Walk-in Client: -ab Sampling: Job / SDG No. Months ŏ Therm ID No. Date/Vime: Date/Time: COC No: Archive for Site Contact: (ANS SONDES Date: 94 12.4.14 Company: Depisposal by Lab Received in Laboratory by: Return to Client N X X X X X X X X XXX メメメ メメ × Ned RCRA × vre any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Regulatory Program: Dw NPDES L Hansist 0 Date/Time: 17.4.14 ☐ WORKING DAYS Date/Tin Matrix 1 week S Lange 3 3 3 3 3 Analysis Turnaround Time 3 3 3 3 Type (C≃Comp, G=Grab) Sample TAT if different from Below _ 2 weeks Project Manager: MAN TellFax: 7147U7 Sample Time 17:4:14 1440 12-4-14 1055 12-4-14 [[40 12-4-14 1300 12-4-14 1045 O281 H1-H21 CALENDAR DAYS 12-14-14 1130 211 | H-H-ZI 12-4-14 1310 reservation Used: 1= Ice, 2= HCI: 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other Company: Arcials Custody Seal No. Sample Date Company: Company: Surlesso Chris Bongssi Special Instructions/QC Requirements & Comments: omments Section if the lab is to dispose of the sample. - Petrola PA Chich Comsolo Sample Identification Client Contact Address: 6041 Wallace the ossible Hazard Identification: Company Name: Arcad 15 Project Name: Indspl City/State/Zip: [DPx Serd Trip Blank FB120414 Custody Seals Intact: 2-5/5 8- *JS Selfunduished by: 38 anduished by 35 Non-Hazard ら で で か j Phone: 7 # O d ä Site:

Pittsburgh, PA 15238 Phone: 412,963,7958 Fax: 412,963,2470

Chain of Custody Record

063924

THE LEADER IN ENVIRONMENTAL TESTING TestAmerica Laboratories, Inc. **TestAmerico**

TAL-8210 (0713) Sample Specific Notes: SOOS Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) For Lab Use Only Job / SDG No.: Walk-in Client: -ab Sampling: ਰੋ Therm ID No <u>る</u> <u>る</u> <u>を</u> Date/Time: D D COC No: T O 17. 4.14 Carrier. Foder Company: Disposal by Lab Site Contact: Chris Bollissi Date: Received in Laboratory by: Lab Contact: Vermica Other: Return to Client मुक्तिवी- पार W/5M 80928 × × RCRA Filtered Sample (Y/N)
Perform MS / MSD (Y/ vre any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Regulatory Program: Dw NPDES # of Cont 2 weeks Standaxs Harris L Date/Time: 12-4-141 CALENDAR DAYS WORKING DAYS Date/Tir Matrix 3 B B Analysis Turnaround Time E Type (C=Comp, G=Grab) Sample TAT if different from Below _ Project Manager: MOM 2 days TellFax: 724 742 Sample Time 120 | W | 120 | 0021 11/1/12 12/4/m 1100 Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other Custody Seal No.: Poison B 12/4/14 Sample Date Company: Company: Ext Sureza Special Instructions/QC Requirements & Comments: omments Section if the lab is to dispose of the sample. Thris Bonessi 8 Project Name: INDSPEC, Petrolla Company Name: Arcull 15 Sample Identification Yes Client Contact Flammable Address: Goul Wallace
City/State/Zip: Wexford
Phone: 724 745 701-0 Phone: 724 742 Custody Seals Intact: Remoduished by: elinquished by: age 99 of 106 Non-Hazard K # O d Site: ĕ

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TestA	TestAmerica Laboratory location:	Chain of Custody Record	Record	200	•	TestAmerica THE FADER IN ENVIRONMENTAL TESTING
Client Contact] DW [RCRA Other			Fest America Laboratories. Inc.
Company Name: Arcachis	Client Project Manager: Man Hamish	Site Contact:	Clarks Donessi	Lab Contact:	U Bortof / Kathrine Kelly	COC No:
GOUI Wallace Ad Ext soule 300	Telephone: 742 9180	Telephone: 724 31	124312 2021	Telephone:		2 of 2 cocs
City/State/Zip: Wexford PA 15090 Mark, Hanish @	Mark. Hanish @	200	Analysis Thrunround Time (pastes age)		Analyses	To the second
Phone: 712 9180	arcadis- Us. com	(below3 weeks	2/0/		
Project Name IndSpec - Petolic PA	Method of Shipment/Carrier:	Jeandon !	2 week	√) juganas gen
Project Number:	Shipping/Tracking No:		2 days (4/10)	رار مار		N. A. C.
PO#		Matrix Contain	igner.	10)		
Sample Identification	Sample Date Sample Time	HCI HAO3 HZ2O4 Othet: 20119 20119	Combined Survey Other: Onlines Other:	los		Sample Specific Notes / Special Instructions:
8-75	X 2401 M/HZ1		β ×	×		
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7-98	x 5111 H1/21		9 7	X		
SH-1	12/4/14 1130 X		ا × ا ح	(S x		
56-1	X 0711 M[2]		9 X	(9 X		
56-6	124 H 1300 x		9 X G			
5W-2_ Langan	12/4/14 1310 x		D ×	β×		
<u> </u>	12/4/14/1320 Y		スペ	×		
FB120414 U	ן חוון ואאס X		9 X	メ		
Possible Hazard Identification Non-Hazard	Skin Irritant Poison B	Sample Dispo	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	are retained longer than	1 month) orMonths	S
opecial instructions/UC requirements & Comments:	·					
Refinquished Dr. Chois Bowssi	Company: Date/Time	Time: 4.14 1745	Received by:		Company:	Date/Time:
			Received by:		Company:	1
Reimquished by:	Company: Date/Time	fime:	Received in Laboratory by:		Company:	Date/Time:

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Date/Time:

Company:

Received in Laboratory by:

Date/Time:

Company:

Company:

Reinquished by:
Reinquished by:

Company:\

Chain of Custody Record

Pittsburgh, PG 15238 Phone: 412.963.7058 Fax: 412.963.2470

Testimenica Pittsburgh

301 Alpha Orive

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THE LEADER IN ENVIRONMENTAL TESTING TESTAMENT の子での子での

TAL-8210 (0713) Sample Specific Notes: SO03 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) رم ة For Lab Use Only ab Sampling: Job / SDG No.: Walk-in Client: COC No: Chain of Custody Archive for Sisposal by Lab Son dearrier. Date: Site Contact BONESS Lab Contact: VP/OMICA Return to Client × × X × × XXX × <u>×</u> × $\overline{\mathsf{x}}$ × メ 又 × × AOV tosiona-Perform MS / MSD Filtered Sample (Y / N) 12-4-14 /745 are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the ☐ NPDES # of Cont. 00 0 Hamis L ☐ WORKING DAYS Matrix 3 3 3 3 B K 3 3 Regulatory Program: Dw 3 3 Analysis Turnaround Time Sample Type (C=Comp, G=Grab) TAT if different from Below Project Manager: WCM 1 week Ð $\widehat{\varphi}$ P ر، 1200 (22) 32 Sample Time 12/3/14 1045 55.21 Meh 124/14/0955 Accordis CALENDAR DAYS 215/m/11/20 12/3/14 1140 5=NaOH; 6= Other 0111 | 1110 Custody Seal No. TellFax: 724 Poison B 12/3/IM 12/4/14 12/3/14 Sample Date 5.830 eservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; special Instructions/QC Requirements & Comments: symments Section if the lab is to dispose of the sample. Chuis Bondssi ノなどがあ angan -angem Sample Identification Langan Client Contact Company Name: Arcadis ity/State/Zip: 1, 20 % for a vdS02 D100120314) UD 120414 Z01-Custody Seals Intact: 1 03 0 58-5 とろって とアード ddress: 604 Non-Hazard roject Name: 7 Phone: 77. #00 ä Site:

Chain of Custody Record

TestAmerica Pittsburgh

TestAmerica Laboratories, Inc. 063925 Ě Regulatory Program: May Manes Pittsburgh, PA 15238 Phone: 412,963,7058 Fax: 412,963,2470

	ol I Giornia	<u> </u>	L DWV	űľ	Caper:				TAL-8210 (0713)	(0713)
Client Contact	Project Manager: WU	2	C Hawish		Site Contact: (ANS (Sonics Date:	94 12.4.	14	COC No:	
" Mades	Tel/Fax: 714 74	7 96	2	_	Lab Contact: Venがいた	2 Borldearrier	. Fede	۲, ۲	2 of 2 cocs	
Address (604) Wallace the Ext some 20	Analysis Turnaround Time	ırnarounc	Time		1/1				Sampler:	
City/State/Zip: [UPX Local / PP 1/090	CALENDAR DAYS	io _M	WORKING DAYS	Ç# 0	(i				For Lab Use Only:	
ΨI	TAT if different from Below	m Below		(N) <u>-</u>				Walk-in Client:	
742 4189	2	2 weeks			7				Lab Sampling:	
Project Name: Inds Net - Perole YA		1 week	<u> </u>		<i>න්,</i> ූන්					
DD/#	7	2 days	ر الريخة الريخة	SW) ejd	310 3-1				Job / SDG No.:	
*		1 day		/ SI]@ V2 -					
		Sample	-		기 년,					
	(I)	Type (C=Comp,	# of	lterec	ગપ ! જે! !જર			-		, .,
Sample Identification		G=Grab)	Matrix	듸	<i> </i>				Sample Specific Notes:	
× 57	12.4.14 1045	Ţ	3		X X X					
1-80	12-4-14 1055	Ŀ	3		<i>KKK</i>					
2/6-2	12.4.14 1115	Ġ,	3		×××					
SH-1	12-4-14 1130	Ĝ	3	W. E.C.	z x x					
1-28	12-4-14 [140	Ġ	9 3		×××					
56-6	124-14 1300	<i>, b ,</i>	3		×××					
55W-2- Limina	0181/14-11	ĿĎ	<i>ت</i> 3		×××					
SW-1_ Langua	0281 H1-H21	(A	9		××××					
FB120414 J	17.4.14 1440	Ğ	3		XXX					
Trip Blank)	Ġ	3	×						
			-							
Preservation Used: 1= Ice, 2= HCl: 3= H2SO4, 4=HNO3, 5=NaOH; 6= Other	5=NaOH; 6= Other		き造りの							
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please	Please List any EPA Waste Codes for the sample in the	Sodes for t	he sample in		ple Disposal (A fe	e may be asses:	sed if samples	are retaine	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Comments Section in the rad is to dispose of the sample.			-	¥ T		ł		ſ		
Son ment Special Instructions/QC Requirements & Comments:	Poison B	Unknown	WIL		Return to Gient	ADisposal by Lab		Archive for	Months	
						-				
Custody Seals Intact: Tyes No	Custody Seal No.:				CoolenTemp		Corr'd:		Therm ID No.:	
Relinquistred by: Churs Bowses	Company:		Date/Time 	Rec	Received Par		Company:	1	Date/Time: 14 92	
	Company:		Date/Time:	Rec	Received by:		Company:		Date/Mme: / /	
Relinquished by:	Company:		Date/Time:	Rece	Received in Laboratory by:	by:	Company:		Date/Time:	

Pittsburgh, PA 15238 Phone: 412.963.7058 Fax: 412.963.2470

Chain of Custody Record

063924

THE LEADER IN ENVIRONMENTAL TESTING TestAmerica Laboratories, Inc.

TestAmerica

Phone: 412.963.7858 Fax: 412.963.2478	Regulatory Program:	RCRA Other:	l estAmerica Laboratories, inc. TAL-8210 (0713)
Client Contact	er: Mark Hamish	Site Contact: Chrris Be	
	TellFax: 724 742 9180	a Bortocarrier: Fodos	of
ce Pol Ext Suresa	Analysis Turna		
te/Zip: Wexfera	☐ CALENDAR DAYS ☐ WORKING DAYS		For Lab Use Only:
י אור אזן בי	TAT if different from Below	Z + Walk-in Client:	lient:
	2 weeks	Lab Sampling:	oling:
Project Name: - NON Pro	1 week > Jamusaka	os os	, NO.
PO#	Z days	5V 4	140
	Sample	300 SW u	
Sample Identification	Sample Sample (C=Comp, Batrix Cont.	Perfor & S.C.	Sample Specific Notes:
Sect - 103	12/4/14 1100 G Sed 3	× N	
Sed - 102	12/11/11/11/20 C sed 9	N X X X	
3ect - 101	12/4/14/1200 C Sed 3	\times_\t	
100 100 H	12/4/14 - C see 3	〇 上	
10			
3 of			
106			
-			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4, 4= HNO3; 5=NaOH; 6= Other	5=NaOH; 6= Other		
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please Comments Section if the lab is to dispose of the sample.	Please List any EPA Waste Codes for the sample in the .	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	ian 1 month)
Non-Hazard Tammable Skin Imtant	☐ Poison B ☐ Unknown	Return to Client Disposal by Lab	Months
Special Instructions/QC Requirements & Comments:			
s Intact: Tes No	eal No.:	Coffier Temp. ("C); Ops'd: Corr'd:	No.:
~ Chris Rongesi	Company: Date/Time: 124.14/74	Received by: What Company and Date/Tim	14 930
	Company: Date/Time:	Received by: Company: Date/Tin	2.0
R蝨Inquished by:	Company: Date/Time:	Received in Laboratory by: Company: Date/Time:	io
	,		

Client: ARCADIS U.S. Inc Job Number: 180-39575-1

Login Number: 39575 List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Kovitch, Christina M

Creator: Novitch, Christina M		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Client: ARCADIS U.S. Inc Job Number: 180-39575-1

List Source: TestAmerica Burlington
List Number: 2
List Creation: 12/08/14 09:38 AM

Creator: Goodrich, Kenneth L

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td>Lab does not accept radioactive samples.</td>	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	-32.8°C IR GUN 181, CF 0.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Client: ARCADIS U.S. Inc Job Number: 180-39575-1

List Source: TestAmerica Burlington
List Number: 3
List Creation: 12/08/14 12:53 PM

Creator: Goodrich, Kenneth L

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td>Lab does not accept radioactive samples.</td>	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	-32.8°C IR GUN 181, CF 0.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
s the Field Sampler's name present on COC?	True	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pittsburgh 301 Alpha Drive RIDC Park Pittsburgh, PA 15238 Tel: (412)963-7058

TestAmerica Job ID: 180-40884-1

Client Project/Site: INDSPEC, Petrolia PA

For:

ARCADIS U.S. Inc 6041 Wallace Road Extension Suite 300 Wexford, Pennsylvania 15090

Attn: Chris Bonessi

Authorized for release by: 2/5/2015 2:40:03 PM

ronce Borbst

Veronica Bortot, Senior Project Manager (412)963-2435

veronica.bortot@testamericainc.com

LINKS

Review your project results through

Total Access

Have a Question?



Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: ARCADIS U.S. Inc Project/Site: INDSPEC, Petrolia PA TestAmerica Job ID: 180-40884-1

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Case Narrative

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-40884-1

Job ID: 180-40884-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative 180-40884-1

Comments

No additional comments.

Receipt

The samples were received on 1/30/2015 2:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2° C.

GC/MS Semi VOA

Method(s) 8270C LL: The following sample(s) was diluted due to the nature of the sample matrix: SED-101 (180-40884-1), SED-103 (180-40884-3 MS), SED-103 (180-40884-3 MSD). As such, surrogate recoverieswill be considered as estimated and elevated reporting limits (RLs) are provided.

Method(s) 8270C LL: The following sample(s) was diluted due to the nature of the sample matrix and based upon screen of: SED-103 (180-40884-3). As such, surrogate recoveries will be considered as estimated and elevated reporting limits (RLs) are provided.

Method(s) 8270C LL: The following sample(s) was diluted due to the nature of the sample matrix and based upon screen of the sample: DUP-012915 (180-40884-4), SED-102 (180-40884-2). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Pre

Method(s) 3541: Due to the matrix, the following samples could not be concentrated to the final method required volume: DUP-012915 (180-40884-4), SED-102 (180-40884-2). The reporting limits (RLs) are elevated proportionately.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Definitions/Glossary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-40884-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a
X	dilution may be flagged with a D. Surrogate is outside control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

RER

RPD

TEF

TEQ

RL

Relative error ratio

Toxicity Equivalent Factor (Dioxin)

Toxicity Equivalent Quotient (Dioxin)

Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control

Certification Summary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-40884-1

Laboratory: TestAmerica Pittsburgh

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

	Authority Pennsylvania	Program NELAP	-		Certification ID 02-00416	Expiration Date 04-30-15		
Analysis Method Prep Method Matrix Analyte	Analysis Method	Analysis Mathed		Anglid				

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Sample Summary

Client: ARCADIS U.S. Inc

Lab Sample ID 180-40884-1 180-40884-2 180-40884-3

180-40884-4

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-40884-1

Client Sample ID	Matrix	Collected	Received
SED-101	Sediment	01/29/15 14:50	01/30/15 14:15
SED-102	Sediment	01/29/15 14:40	01/30/15 14:15
SED-103	Sediment	01/29/15 14:30	01/30/15 14:15
DUP-012915	Sediment	01/29/15 00:00	01/30/15 14:15

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Method Summary

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-40884-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL PIT
2540G	SM 2540G	SM22	TAL PIT

Protocol References:

SM22 = SM22

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

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Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-101

Date Collected: 01/29/15 14:50

Date Received: 01/30/15 14:15

Client Sample ID: SED-102

Date Collected: 01/29/15 14:40

Date Received: 01/30/15 14:15

Lab Sample ID: 180-40884-1

Percent Solids: 79.2

Matrix: Sediment

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3541			30.0 g	0.5 mL	132304	02/02/15 02:45	KLG	TAL PIT
Total/NA	Analysis	8270C LL		10	30.0 g	0.5 mL	132422	02/03/15 09:32	SAB	TAL PIT
	Instrum	ent ID: CH722								
Total/NA	Analysis	2540G		1			132262	01/30/15 15:55	NAK	TAL PIT
	Instrum	ent ID: NOEQUIP								

Lab Sample ID: 180-40884-2

Matrix: Sediment

Percent Solids: 79.8

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3541			30.2 g	1.0 mL	132304	02/02/15 02:45	KLG	TAL PIT
Total/NA	Analysis	8270C LL		20	30.2 g	1.0 mL	132546	02/04/15 06:37	FBB	TAL PIT
	Instrum	ent ID: CH722								
Total/NA	Analysis	2540G		1			132262	01/30/15 15:55	NAK	TAL PIT
	Instrum	ent ID: NOEQUIP								

Client Sample ID: SED-103 Lab Sample ID: 180-40884-3

Date Collected: 01/29/15 14:30 **Matrix: Sediment** Date Received: 01/30/15 14:15 Percent Solids: 79.5

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3541			30.1 g	0.5 mL	132304	02/02/15 02:45	KLG	TAL PIT
Total/NA	Analysis Instrum	8270C LL ent ID: CH722		10	30.1 g	0.5 mL	132546	02/04/15 07:05	FBB	TAL PIT
Total/NA	Analysis Instrum	2540G ent ID: NOEQUIP		1			132262	01/30/15 15:55	NAK	TAL PIT

Client Sample ID: DUP-012915 Lab Sample ID: 180-40884-4

Date Collected: 01/29/15 00:00 **Matrix: Sediment** Date Received: 01/30/15 14:15 Percent Solids: 65.6

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3541			30.0 g	4.0 mL	132304	02/02/15 02:45	KLG	TAL PIT
Total/NA	Analysis Instrume	8270C LL ent ID: CH722		20	30.0 g	4.0 mL	132546	02/04/15 07:33	FBB	TAL PIT
Total/NA	Analysis Instrume	2540G ent ID: NOEQUIP		1			132262	01/30/15 15:55	NAK	TAL PIT

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-40884-1

Analyst References:

Lab: TAL PIT

Batch Type: Prep

KLG = Kevin Geehring

Batch Type: Analysis

FBB = Frank Bungard

NAK = Neil Klingman

SAB = Sharon Bacha

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Client: ARCADIS U.S. Inc

Percent Solids

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-101

Lab Sample ID: 180-40884-1

Matrix: Sediment Percent Solids: 79.2

Date Collected: 01/29/15 14:50	
Date Received: 01/30/15 14:15	

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		42	5.0	ug/Kg	₩	02/02/15 02:45	02/03/15 09:32	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	95		33 - 110				02/02/15 02:45	02/03/15 09:32	10
2-Fluorophenol	69		33 - 100				02/02/15 02:45	02/03/15 09:32	10
Phenol-d5	88		37 - 100				02/02/15 02:45	02/03/15 09:32	10
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	21		0.10	0.10	%			01/30/15 15:55	1
Percent Solids	79		0.10	0.10	%			01/30/15 15:55	1

Client Sample ID: SED-102 Lab Sample ID: 180-40884-2 Date Collected: 01/29/15 14:40 **Matrix: Sediment**

Date Received: 01/30/15 14:15 Percent Solids: 79.8

	·								
Method: 8270C LL - Semivo		pounds by (Qualifier	GCMS - Low Le	vels MDL	Unit	D	Prepared	Analyzed	Dil Fa
		Qualifier							
Phenol	ND		170	20	ug/Kg	₽	02/02/15 02:45	02/04/15 06:37	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
2,4,6-Tribromophenol	0	DX	33 - 110				02/02/15 02:45	02/04/15 06:37	20
2-Fluorophenol	0	DX	33 - 100				02/02/15 02:45	02/04/15 06:37	20
Phenol-d5	0	DX	37 - 100				02/02/15 02:45	02/04/15 06:37	20
- General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fa
Percent Moisture	20		0.10	0.10	%			01/30/15 15:55	
Percent Solids	80		0.10	0.10	%			01/30/15 15:55	•

Client Sample ID: SED-103 Lab Sample ID: 180-40884-3 Date Collected: 01/29/15 14:30 **Matrix: Sediment** Date Received: 01/30/15 14:15 Percent Solids: 79.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	10	J	42	4.9	ug/Kg	*	02/02/15 02:45	02/04/15 07:05	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	99		33 - 110				02/02/15 02:45	02/04/15 07:05	10
2-Fluorophenol	80		33 - 100				02/02/15 02:45	02/04/15 07:05	10
Phenol-d5	82		37 - 100				02/02/15 02:45	02/04/15 07:05	10
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	21		0.10	0.10	%	 _		01/30/15 15:55	1
Percent Solids	79		0.10	0.10	%			01/30/15 15:55	1

TestAmerica Pittsburgh

Client Sample Results

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: DUP-012915 Date Collected: 01/29/15 00:00

Date Received: 01/30/15 14:15

Lab Sample ID: 180-40884-4

TestAmerica Job ID: 180-40884-1

Matrix: Sediment

Percent Solids: 65.6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		820	96	ug/Kg		02/02/15 02:45	02/04/15 07:33	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol		DX	33 - 110				02/02/15 02:45	02/04/15 07:33	20
2-Fluorophenol	0	DX	33 - 100				02/02/15 02:45	02/04/15 07:33	20
Phenol-d5	0	DX	37 - 100				02/02/15 02:45	02/04/15 07:33	20
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	34		0.10	0.10	%			01/30/15 15:55	1
Percent Solids	66		0.10	0.10	%			01/30/15 15:55	1

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Client: ARCADIS U.S. Inc

Matrix: Sediment

Analysis Batch: 132422

Project/Site: INDSPEC, Petrolia PA

Lab Sample ID: MB 180-132304/1-A

TestAmerica Job ID: 180-40884-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 132304

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		3.4	0.39	ug/Kg		02/02/15 02:45	02/03/15 00:36	1

MB MB Qualifier Limits Prepared Analyzed Dil Fac Surrogate %Recovery 33 - 110 02/02/15 02:45 02/03/15 00:36 2,4,6-Tribromophenol 52 2-Fluorophenol 70 33 - 100 02/02/15 02:45 02/03/15 00:36 Phenol-d5 73 37 - 100 02/02/15 02:45 02/03/15 00:36

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 180-132304/2-A **Matrix: Sediment**

Prep Type: Total/NA Prep Batch: 132304

Analysis Batch: 132422 LCS LCS Spike Analyte Added Result Qualifier Unit %Rec Limits Phenol 333 81 34 - 100 268 ug/Kg

LCS LCS Surrogate %Recovery Qualifier Limits 2,4,6-Tribromophenol 69 33 - 110 2-Fluorophenol 75 33 - 100 78 37 - 100 Phenol-d5

Lab Sample ID: 180-40884-3 MS Client Sample ID: SED-103 **Matrix: Sediment** Prep Type: Total/NA

Prep Batch: 132304

Analysis Batch: 132422 Sample Sample MS MS Spike %Rec. Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits Phenol 418 # 90 10 385 ug/Kg 34 - 100

MS MS Qualifier Limits Surrogate %Recovery 2,4,6-Tribromophenol 103 33 - 110 33 - 100 2-Fluorophenol 83 Phenol-d5 37 - 100 90

Lab Sample ID: 180-40884-3 MSD Client Sample ID: SED-103

Matrix: Sediment Analysis Batch: 132422 Prep Type: Total/NA Prep Batch: 132304

Sample Sample Spike MSD MSD %Rec. RPD Result Qualifier hahhΔ Qualifier Limit Analyte Result Unit ח %Rec I imits RPD ₩ 10 J 418 Phenol 363 ug/Kg 84 34 - 100 6 40

MSD MSD Qualifier Surrogate %Recovery Limits 2,4,6-Tribromophenol 96 33 - 110 2-Fluorophenol 77 33 - 100 37 - 100 Phenol-d5 88

Client: ARCADIS U.S. Inc

Project/Site: INDSPEC, Petrolia PA

TestAmerica Job ID: 180-40884-1

GC/MS Semi VOA

Prep Batch: 132304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-40884-1	SED-101	Total/NA	Sediment	3541	
180-40884-2	SED-102	Total/NA	Sediment	3541	
180-40884-3	SED-103	Total/NA	Sediment	3541	
180-40884-3 MS	SED-103	Total/NA	Sediment	3541	
180-40884-3 MSD	SED-103	Total/NA	Sediment	3541	
180-40884-4	DUP-012915	Total/NA	Sediment	3541	
LCS 180-132304/2-A	Lab Control Sample	Total/NA	Sediment	3541	
MB 180-132304/1-A	Method Blank	Total/NA	Sediment	3541	

Analysis Batch: 132422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-40884-1	SED-101	Total/NA	Sediment	8270C LL	132304
180-40884-3 MS	SED-103	Total/NA	Sediment	8270C LL	132304
180-40884-3 MSD	SED-103	Total/NA	Sediment	8270C LL	132304
LCS 180-132304/2-A	Lab Control Sample	Total/NA	Sediment	8270C LL	132304
MB 180-132304/1-A	Method Blank	Total/NA	Sediment	8270C LL	132304

Analysis Batch: 132546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-40884-2	SED-102	Total/NA	Sediment	8270C LL	132304
180-40884-3	SED-103	Total/NA	Sediment	8270C LL	132304
180-40884-4	DUP-012915	Total/NA	Sediment	8270C LL	132304

General Chemistry

Analysis Batch: 132262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-40884-1	SED-101	Total/NA	Sediment	2540G	
180-40884-2	SED-102	Total/NA	Sediment	2540G	
180-40884-3	SED-103	Total/NA	Sediment	2540G	
180-40884-4	DUP-012915	Total/NA	Sediment	2540G	

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Chain of Custody Record

Pittsburgh Ph 15238 Phone: 412.963.7058 Fax: 412.963.2470

TestAmerica Pittsburgh

Testamerica THE LEADER IN ENVIRONMENTAL TESTING TestAmerica Laboratories, Inc. 064406

	Regulatory Program: Dw NPDES	□ RCRA □ Other:	TAL-8210 (0713)
Client Contact	Project Manager: Man Hans H	tt. C BOM3651 Date: 1. 29. 1 x COC No:	
Company Name: Arcidas	7	Carrier: Foll 6	s
Address: 6041 Wallace Rd EXT Suite 30	Analysis Turnaround Time	Sampler:	
NOXON DE INC	CALENDAR DAYS WORKING DAYS	For Lab Use Only:	
4 742 9180	t from B	Walk-in Client:	
	\square 2 weeks $S_{Q,A}$		
Project Name: 126.71/ LNAS De C	1 week		
#00	Š	W(O'V	
	mple A	Mod Salva May	
Sample Identification		Peri	tes:
SE0- 101	1-29-15 1450 C Sed 1	X	
SED- 102	1-29-15 1440 C Sel 1	X	
SED-103	1,24.15 1430 C Sed 3	Mys) lov x5	Washingal
Day - 0129 15	ر _ک		
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15			
		Coco Chain of Custody	
		180-40864 (1991)	
reservation Used: 1= (ce, 2= HCt): 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other	5=NaOH; 6= Other		
ossible Hazard Identification: we any samples from a listed EPA Hazardous Waste? Please comments Section if the lab is to dispose of the sample.	Please List any EPA Waste Codes for the sample in the	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Non-Hazard Flammable Skin Irritant	☐ Poison B ☐ Unknown	Return to Client Authority Lab Archive for Months	
ipecial Instructions/QC Requirements & Comments: ໄດປປ ໄດປປ	to Veronica	about TAT - would like to get thise	
s Intact: Tes No	ody Seal No.:	Cooler Temp. ("Cirobs'd:	
	Company: Date/TimeCip	Received by Date/Time: Company 12.74 Date/Time: 73	8
UMS Devices:	10	Received by: Company: Date/Time:	
*Industrial and industrial and indus	Conspendig On Date/Time	Reseived in aboratory by: Company: Date/Time;	1

Client: ARCADIS U.S. Inc Job Number: 180-40884-1

Login Number: 40884 List Source: TestAmerica Pittsburgh

List Number: 1 Creator: Neri, Tom

Creator: Neri, Tom		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

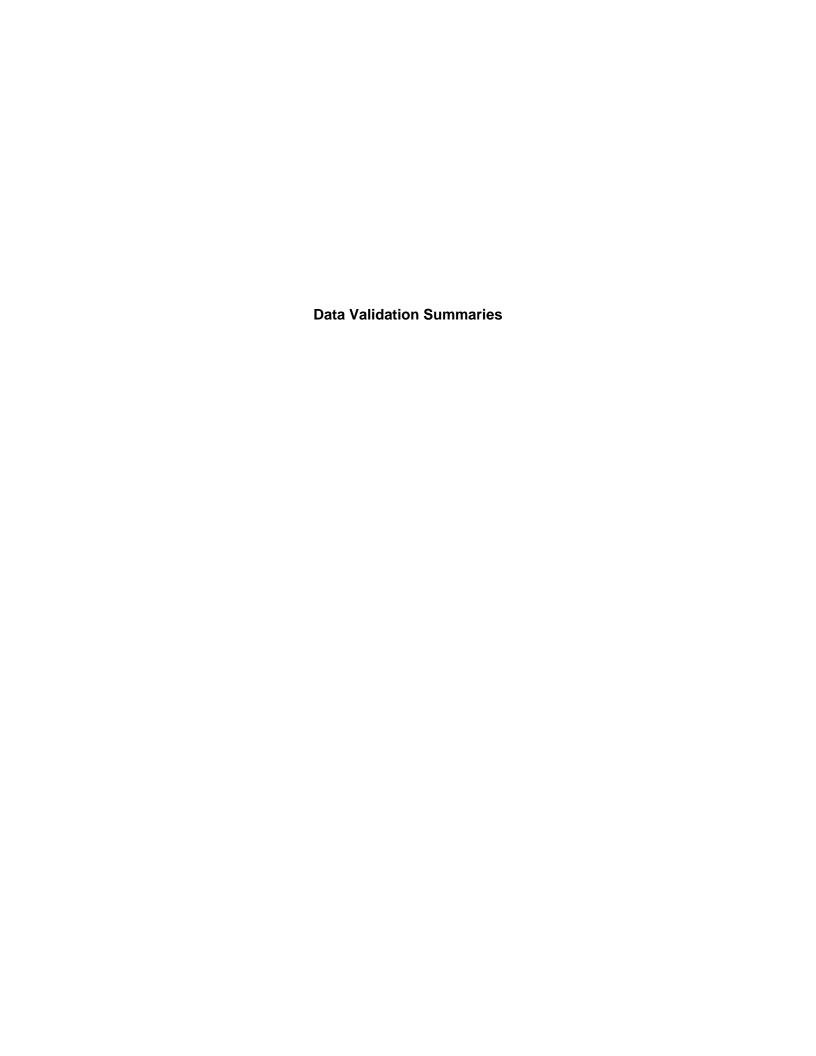
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INDSPEC Petrolia

Data Review

PETROLIA, PENNSYLVANIA

Semi-volatile analysis

SDG #: 180-40884

Analyses Performed By: TestAmerica Laboratories Pittsburgh, PA

Report #: 23159R Review Level: Tier III

Project: B0039303.0001.00001

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 180-40884 for samples collected in association with the INDSPEC site in Petrolia, PA. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody.

			Sample	Parent	Analysis						
Sample ID	Lab ID	Matrix	Collection Date	Sample	voc	svoc	GRO	DRO	MISC		
SED-103	180-40884-3	Sediment	1/29/2015			Х					
SED-102	180-40884-2	Sediment	1/29/2015			Х					
SED-101	180-40884-1	Sediment	1/29/2015			Х					
DUP-012915	180-40884-4	Sediment	1/29/2015	SED-102		Х					

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

		Reported		Performance Acceptable		Not
	Items Reviewed	No	Yes	No	Yes	Required
1.	Sample receipt condition		Х		Х	
2.	Requested analyses and sample results		Х		Х	
3.	Collection Technique (grab, composite, etc.)		Х		Х	
4.	Methods of analysis		Х		Х	
5.	Reporting limits		Х		Х	
6.	Sample collection date		Х		Х	
7.	Laboratory sample received date		Х		Х	
8.	Sample preservation verification (as applicable)		Х		Х	
9.	Sample preparation/extraction/analysis dates		Х		Х	
10.	Fully executed Chain-of-Custody (COC) form		Х		Х	
11.	Narrative summary of QA or sample problems provided		Х		Х	
12.	Data Package Completeness and Compliance		Х		Х	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method 8270C. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999 as modified or applicable to the method, using method requirements and professional judgment as criteria for qualification.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on

data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

SEMI-VOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6°C
344-040 6270	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6°C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

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All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
	Phenol-d6	D
	2-Fluorophenol	D
SED-102 DUP-012915	2,4,6-Tribromophenol	D
DOP-012915	Nitrobenzene-d5	D
	2-Fluorobiphenyl	D
	Terphenyl-d14	D

D Diluted

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
> OL	Detect	J
all but > 100/	Non-detect	UJ
< LL but > 10%	Detect	J
100/	Non-detect	R
< 10%	Detect	
Surrogates diluted below the calibration curve due to the	Non-detect	ı ¹
high concentration of a target compounds	Detect	J

A more concentrated analysis was not performed with surrogate compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

The laboratory noted the samples associated with this SDG were diluted due to the nature of the sample matrix and based upon screening results. Surrogate recoveries are below the calibration range for the samples listed above; therefore results are qualified as estimated (J). Elevated reporting limits (RLs) are provided for all samples associated with this SDG.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the SVOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SED-102/ DUP-012915	Phenol	170 U	820 U	NC

NC - Not Compliant

The compound phenol associated with sample locations SED-102 and DUP-012915 exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated. The laboratory noted the sample extract for DUP-012915 was concentrated to a final volume four times higher than SED-102 due to the matrix of the sample; this resulted in a discrepancy between reporting limits.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Rep	orted		mance ptable	Not
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMET	RY (GC/	MS)			
Tier II Validation					
Holding times		Χ		Х	
Reporting limits (units)		Х		Х	
Blanks					
A. Method blanks		Х		Х	
B. Field blanks					Х
Laboratory Control Sample (LCS) %R		Х		Х	
Laboratory Control Sample Duplicate (LCSD) %R					Х
LCS/LCSD Precision (RPD)					Х
Matrix Spike (MS) %R		Х		Х	
Matrix Spike Duplicate(MSD) %R		Х		Х	
MS/MSD Precision (RPD)		Х		Х	
Field Duplicate (RPD)		Х	Х		
Surrogate Spike Recoveries		Х	Х		
Dilution Factor		Х		Х	
Moisture Content		Х		Х	
Tier III Validation	•	•	•	•	
System performance and column resolution		Х		Х	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х		Х	
Instrument tune and performance check		Х		Х	
Ion abundance criteria for each instrument used		Х		Х	
Internal standard		Х		Х	
Compound identification and quantitation		- I	l		
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
RT of sample compounds within the established RT windows		Х		Х	
D. Transcription/calculation errors present				Х	
E. Reporting limits adjusted to reflect sample dilutions%RSD Relative standard deviation		Х		Х	

%RSD Relative standard deviation %R Percent recovery RPD Relative percent difference

%D Percent difference Validation Performed By: __Jeffrey L. Davin

Signature:

Date: February 16, 2015

Peer Review: Dennis Capria

Date: February 24, 2015

CHAIN OF CUSTODY/LABORAOTRY QUALIFIER DEFINITIONS/ CORRECTED SAMPLE ANALYSIS DATA SHEETS

TestAmerica Pittsburgh 301 Alpha Drive

Chain of Custody Record

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10017		
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THE LEADER IN ENVIRONMENTAL TESTING TestAmerica Laboratories, Inc.

Pittsburgh, PA 15238 Phone: 412.963.7058 Fax: 412.963.2470 Regulatory Program: DW NPDES RCRA Other: TAL-8210 (0713) Project Manager: Max Client Contact Site Contact: C COC No: Date: Company Name: Tel/Fax: Lab Contact: 17 COCs Carrier: Address: 6041 Wallace Bd Ext Suite300 Analysis Turnaround Time Sampler: 15090 CALENDAR DAYS WORKING DAYS 270 For Lab Use Only: Walk-in Client: TAT if different from Below Fax: V Lab Sampling: 2 weeks Project Name: Remolia, PA 2 days Job / SDG No.: Pheno 1 day Sample Type Sample Sample (C=Comp, Date Sample Identification Time G=Grab) Matrix Cont. Sample Specific Notes: 1-29-15 1440 1-29-15 1430 1-29-6 Sec Preservation Used: 1= Ice, 2= HCI: 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other Possible Hazard Identification: Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. Non-Hazard Disposal by Lab Flammable Poison B Unknown Return to Client Archive for Special Instructions/QC Requirements & Comments: Veronica . Costody Seals Intact: Custody Seal No.: Cooler Temp. (°C): Obs'd; Yes Therm ID No.: No Relinquished by: Company: 1300 1301 Religguished by: Chris Boruss? Received by: Company: Company:

Definitions/Glossary

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-40884-1

Project/Site: INDSPEC, Petrolia PA

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a
	dilution may be flagged with a D.
X	Surrogate is outside control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-40884-1

Project/Site: INDSPEC, Petrolia PA

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Client Sample ID: SED-101 Date Collected: 01/29/15 14:50 Date Received: 01/30/15 14:15							Lab S	Sample ID: 180- Matrix: So Percent Soli	ediment
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		42	5.0	ug/Kg	*	02/02/15 02:45	02/03/15 09:32	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	95		33 - 110				02/02/15 02:45	02/03/15 09:32	10
2-Fluorophenol	69		33 - 100				02/02/15 02:45	02/03/15 09:32	10
Phenol-d5	88		37 - 100				02/02/15 02:45	02/03/15 09:32	10

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-40884-1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-102 Date Collected: 01/29/15 14:40							Lab S	Sample ID: 180- Matrix: Se	
Date Received: 01/30/15 14:15								Percent Soli	ds: 79.8
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND	J	170	20	ug/Kg	₩	02/02/15 02:45	02/04/15 06:37	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	0	DX	33 - 110				02/02/15 02:45	02/04/15 06:37	20
2-Fluorophenol	0	DX	33 - 100				02/02/15 02:45	02/04/15 06:37	20
Phenol-d5	0	DX	37 - 100				02/02/15 02:45	02/04/15 06:37	20

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-40884-1

Project/Site: INDSPEC, Petrolia PA

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Client Sample ID: SED-103 Date Collected: 01/29/15 14:30 Date Received: 01/30/15 14:15							Lab	Sample ID: 180- Matrix: So Percent Soli	ediment
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	10	J	42	4.9	ug/Kg	*	02/02/15 02:45	02/04/15 07:05	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	99		33 - 110				02/02/15 02:45	02/04/15 07:05	10
2-Fluorophenol	80		33 - 100				02/02/15 02:45	02/04/15 07:05	10
Phenol-d5	82		37 - 100				02/02/15 02:45	02/04/15 07:05	10

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-40884-1

Project/Site: INDSPEC, Petrolia PA

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Client Sample ID: DUP-012915 Date Collected: 01/29/15 00:00 Date Received: 01/30/15 14:15							Lab S	Sample ID: 180- Matrix: So Percent Soli	ediment
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND	J	820	96	ug/Kg	₽	02/02/15 02:45	02/04/15 07:33	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol		DX	33 - 110				02/02/15 02:45	02/04/15 07:33	20
2-Fluorophenol	0	DX	33 - 100				02/02/15 02:45	02/04/15 07:33	20
Phenol-d5	0	DX	37 - 100				02/02/15 02:45	02/04/15 07:33	20



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INDSPEC Petrolia

Data Review

PETROLIA, PENNSYLVANIA

Volatile and Miscellaneous analyses

SDG #: 180-36441-1 and 180-36402-1

Analyses Performed By: TestAmerica Laboratories Pittsburgh, PA Burlington, VT Tallahassee, FL

Report #: 22472R Review Level: Tier III

Project: B0039303.0001.00001

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 180-36441-1 and 180-36402-1 for samples collected in association with the INDSPEC site in Petrolia, PA. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody.

Overall, the quality control data, as defined in the USEPA SW-846 Methods 8260B/8260C/8315A and laboratory performance criteria, were within the guidelines specified in the method with the exception of those deviations specifically mentioned in this review. The data validation resulted in a number of detect/non-detect sample results being qualified as estimated (J/UJ) respectively due to minor QC failures, or qualified as non-detect (UB) due to associated quality assurance (QA) blanks (i.e., method, trip blanks) contamination. Additionally, several non-detected sample results were qualified as rejected (R) due to major QC failures; Resorcinol and 2,3',4-Trihydroxydiphenyl associated with sediment samples SED-101, SED-102, SED-103 and DUP090414 were qualified as rejected due to matrix spike recovery deviations. Similarly, p-Phenolsulfonic acid associated with sediment samples SED-101 and DUP090414 was qualified as rejected due to matrix spike recovery deviations. With the exception of the major QC deviations listed here, all the data associated with this sampling event are usable for the intended purpose.

Analyses were performed on the following samples:

			Sample	Parent	Analysis				
Sample ID	Lab ID	Matrix	Collection Date	Sample	voc	svoc	GRO	DRO	MISC
SW-5 LANGAN	180-36441-1	Water	9/4/2014		Х				Х
SW-2 LANGAN	180-36441-10	Water	9/4/2014		Х				Х
SW-1 LANGAN	180-36441-11	Water	9/4/2014		Х				Х
DUP090414	180-36441-12	Sediment	9/4/2014	SED-101	Х				Х
SG-4	180-36441-13	Water	9/5/2014		Х				Х
SG-3	180-36441-14	Water	9/5/2014		Х				Х
SG-8	180-36441-15	Water	9/5/2014		Х				Х
SW-1	180-36441-16	Water	9/5/2014		Х				Х
SG-2	180-36441-17	Water	9/5/2014		Х				Х
SH-1	180-36441-18	Water	9/5/2014		Х				Х
SG-1	180-36441-19	Water	9/5/2014		Х				Х
SED-103	180-36441-2	Sediment	9/4/2014		Х				Х
EB090514	180-36441-20	Water	9/5/2014		Х				Х
DUP090514	180-36441-21	Water	9/5/2014	SG-4	Х				Х
TRIP BLANKS	180-36441-22	Water	9/5/2014		Х				
SW-4 LANGAN	180-36441-3	Water	9/4/2014		Х				Х
SED-102	180-36441-4	Sediment	9/4/2014		Х				Х

			Sample	Parent	Analysis				
Sample ID	Lab ID	Matrix	Collection Date	Sample	voc	svoc	GRO	DRO	MISC
SW-3 LANGAN	180-36441-5	Water	9/4/2014		Х				Х
SED-101	180-36441-6	Sediment	9/4/2014		Х				Х
SG-7	180-36441-7	Water	9/4/2014		Х				Х
SG-5	180-36441-8	Water	9/4/2014		Х				Χ
SG-6	180-36441-9	Water	9/4/2014		Х			·	Х

Notes

- 1. Miscellaneous analyses include formaldehyde, sulfate and site specific COCs (m-Benzenedisulfonic acid, p-Phenolsulfonic acid, Benzenesulfonic acid, Resorcinol and 2,3',4-Trihydroxydiphenyl).
- 2. Sulfonic Acid analysis was performed by TestAmerica Burlington.
- 3. Formaldehyde analysis was performed by TestAmerica Tallahassee.
- 4. VOCs and Sulfate analyses were performed by TestAmerica Pittsburgh; the Lab IDs listed above reflect those assigned by TestAmerica Pittsburgh.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

	Reported			mance otable	Not	
	Items Reviewed	No	Yes	No	Yes	Required
1.	Sample receipt condition		X		X	
2.	Requested analyses and sample results		Х		Х	
3.	Collection Technique (grab, composite, etc.)		Х		Х	
4.	Methods of analysis		Х		Х	
5.	Reporting limits		Х		Х	
6.	Sample collection date		Х		Х	
7.	Laboratory sample received date		Х		Х	
8.	Sample preservation verification (as applicable)		Х		Х	
9.	Sample preparation/extraction/analysis dates		Х		Х	
10.	Fully executed Chain-of-Custody (COC) form		Х		Х	
11.	Narrative summary of QA or sample problems provided		Х		Х	
12.	Data Package Completeness and Compliance		Х		Х	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Methods 8260B, 8260C, 8315A and the LCMS/MS method for Sulfonic Acids based on TestAmerica-Burlington's SOP BR-LC-005. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999 as modified or applicable to the method, using method requirements and professional judgment as criteria for qualification.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and

provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2 s.u.
SW-846 8260	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks, trip blanks, and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure sample storage contamination. Rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All compounds associated with the QA blanks exhibited a concentration less than the MDL, with the exception of the compounds listed in the following table. Sample results associated with QA blank contamination that were greater than the BAL resulted in the removal of the laboratory qualifier (B) of data. Sample results less than the BAL associated with the following sample locations were qualified as listed in the following table.

Sample Locations	Analytes	Sample Result	Qualification
SED-102	Acetone (TB)	Detected sample results <rl <bal<="" and="" td=""><td>"UB" at the RL</td></rl>	"UB" at the RL
All water samples associated with this SDG	Acetone (TB)	Detected sample results >RL and <bal< td=""><td>"UB" at detected sample concentration</td></bal<>	"UB" at detected sample concentration

RL Reporting limit TB Trip Blank

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SG-4 TRIP BLANKS SW-3 LANGAN SG-7 SG-5 SW-2 LANGAN SW-1 LANGAN SW-1 SG-2 SH-1 SG-1 EB090514 SG-3 SG-8 DUP090514	ICV %RSD	Methylene chloride	18.0%
SG-4 TRIP BLANKS SW-3 LANGAN SG-7 SG-5 SW-2 LANGAN SW-1 LANGAN SW-1 SG-2 SH-1 SG-1 EB090514	CCV %D	Acetone	39.0%

Sample Locations	Initial/Continuing	Compound	Criteria
		Chloromethane	22.5%
		Bromomethane	60.9%
SED-103 SED-102 SED-101 DUP090414	CCV %D	Chloroethane	65.7%
		Dichlorofluoromethane	43.5%
		Trichlorofluoromethane	50.0%
		1,1,1-Trichloroethane	27.4%
		Carbon tetrachloride	28.3%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
	RRF <0.05	Non-detect	R
	KKF <0.05	Detect	J
Initial and Continuing	RRF <0.01 ¹	Non-detect	R
Calibration	KKF <0.01	Detect	J
	RRF >0.05 or RRF >0.01 ¹	Non-detect	No Action
	KKF >0.05 0 KKF >0.01	Detect	NO ACTION
	%RSD > 15% or a correlation	Non-detect	UJ
Initial Calibration	coefficient <0.99	Detect	J
Initial Calibration	0/ BCD > 000/	Non-detect	R
	%RSD >90%	Detect	J
	0/D > 200/ (increase in consitiuity)	Non-detect	No Action
	%D >20% (increase in sensitivity)	Detect	J
Continuing Calibration	0/D - 200/ (de graces in consistinity)	Non-detect	UJ
	%D >20% (decrease in sensitivity)	Detect	J
	%D >90% (increase/decrease in	Non-detect	R
	sensitivity)	Detect	J

RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within the control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

Sample locations associated with internal standards exhibiting responses outside of the control limits are presented in the following table.

Sample Locations	Internal Standard	Response
	Fluorobenzene	AC
SED-102	Chlorobenzene-d5	AC
	1,4-Dichlorobenzene-d4	<ll but="">25%</ll>

AC Acceptable

The criteria used to evaluate the internal standard responses are presented in the following table. In the case of an internal standard deviation, the compounds quantitated under the deviant internal standard are qualified as documented in the table below.

Control limit	Sample Result	Qualification
the upper central limit (LIII)	Non-detect	No action
> the upper control limit (UL)	Detect	J
the lower central limit (LL) but > 250/	Non-detect	UJ
< the lower control limit (LL) but > 25%	Detect	J
< 25%	Non-detect	R
< 2070	Detect	J

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
	1,1,1-Trichloroethane	>UL	>UL
SED-102	1,1,2-Trichloroethane	>UL	>UL
	1,1-Dichloroethane	>UL	>UL

Sample Locations	Compound	MS Recovery	MSD Recovery
	1,1-Dichloroethene	>UL	>UL
	1,2,4-Trichlorobenzene	<ll but="">10%</ll>	AC
	1,2-Dichloroethane	>UL	>UL
	2-Hexanone	>UL	>UL
	Bromomethane	>UL	>UL
	Carbon disulfide	>UL	>UL
	Carbon tetrachloride	>UL	>UL
	Chlorodibromomethane	>UL	>UL
	Chloroethane	>UL	>UL
	Chloroform	>UL	>UL
	Chloromethane	>UL	>UL
	cis-1,2-Dichloroethene	>UL	>UL
	Cyclohexane	>UL	AC
	Dichlorobromomethane	>UL	>UL
	Dichlorodifluoromethane	>UL	>UL
	Methyl tert-butyl ether	>UL	AC
	Toluene	>UL	>UL
	trans-1,2-Dichloroethene	>UL	>UL
	trans-1,3-Dichloropropene	>UL	>UL
	Trichlorofluoromethane	>UL	>UL
	Vinyl chloride	>UL	>UL

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
> tile apper control littlit (OL)	Detect	J
the lower central limit (LL) but > 100/	Non-detect	UJ
< the lower control limit (LL) but > 10%	Detect	J
< 10%	Non-detect	R
< 10%	Detect	J
Parent sample concentration > four times the MS/MSD	Detect	No Action
spiking solution concentration.	Non-detect	INO ACTION

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
	1,2,4-Trichlorobenzene
	1,2-Dibromo-3-Chloropropane
SED-102	1,2-Dichlorobenzene
	1,3-Dichlorobenzene
	1,4-Dichlorobenzene

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
) UL	Detect	J

8. Laboratory Control Sample (LCS) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
	Bromomethane	>UL
SED-103	Carbon tetrachloride	>UL
	Chloroethane	>UL

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
the upper central limit (III.)	Non-detect	No Action
> the upper control limit (UL)	Detect	J
the lower central limit (LL) but > 100/	Non-detect	UJ
< the lower control limit (LL) but > 10%	Detect	J
< 10%	Non-detect	R
< 10%	Detect	J

9. Field Duplicate Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for the field duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SED-101/ DUP090414	Ethyl ether	0.66 J	5.7 U	AC
	1,2-Dichlorobenzene	1.6	1.8	AC
00.4/	1,4-Dichlorobenzene	0.36 J	0.38 J	AC
SG-4/ DUP090514	Benzene	0.12 J	0.15 J	AC
090314	Chlorobenzene	0.88 J	1.1	AC
	Ethyl ether	1.5	0.90 J	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROME	TRY (GC/	MS)			
Tier II Validation		_			
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		Х		Х	
B. Equipment blanks		Х		Х	
C. Trip blanks		Х	Х		
Laboratory Control Sample (LCS)		Х	Х		
Laboratory Control Sample Duplicate(LCSD)					Х
LCS/LCSD Precision (RPD)					Х
Matrix Spike (MS)		Х	Х		
Matrix Spike Duplicate(MSD)		Х	Х		
MS/MSD Precision (RPD)		Х	Х		
Field/Lab Duplicate (RPD)		Х		Х	
Surrogate Spike Recoveries		Х		Х	
Dilution Factor		Х		Х	
Moisture Content					Х
Tier III Validation		•	•	•	
System performance and column resolution		Х		Х	
Initial calibration %RSDs		Х	Х		
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х	Х		
Instrument tune and performance check		Х		Х	
Ion abundance criteria for each instrument used		Х		Х	
Internal standard		Х	Х		
Compound identification and quantitation		1	1	1	1
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		Х		Х	
D. Quantitation transcriptions/calculations		Х		Х	

VOCs: SW-846 8260	Repo	orted	Acceptable		Not Required
	No	Yes	No	Yes	rtoquirou
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Reporting limits adjusted to reflect sample dilutions		Х		Х	

%RSD Relative standard deviation

%R

Percent recovery
Relative percent difference
Percent difference RPD

%D

SITE SPECIFIC COCs (m-Benzenedisulfonic acid, p-Phenolsulfonic acid, Benzenesulfonic acid, Resorcinol and 2,3',4-Trihydroxydiphenyl)

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
LCMS/MS method for Site-	Water	7 days from collection to analysis	Cool to <6 °C.
Specific COCs based on TestAmerica-Burlington's SOP BR-LC-005	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS/MSD Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
SW-5 LANGAN	Resorcinol	<ll but="">10%</ll>	NA
SW-5 LANGAN	2,3',4-Trihydroxydiphenyl	>UL	NA
SW-4 LANGAN	2,3',4-Trihydroxydiphenyl	>UL	NA
3W-4 LANGAN	m-Benzenedisulfonic acid	>UL	NA
SW-3 LANGAN	2,3',4-Trihydroxydiphenyl	>UL	NA
SG-2	Benzenesulfonic acid	<ll but="">10%</ll>	NA
30-2	2,3',4-Trihydroxydiphenyl	>UL	NA
SH-1	Benzenesulfonic acid	<ll but="">10%</ll>	NA
311-1	2,3',4-Trihydroxydiphenyl	>UL	NA
SG-1	2,3',4-Trihydroxydiphenyl	>UL	NA
DUP090514	2,3',4-Trihydroxydiphenyl	>UL	NA
SG-4	2,3',4-Trihydroxydiphenyl	>UL	>UL
SW-5	Resorcinol	<ll but="">10%</ll>	NA
344-5	2,3',4-Trihydroxydiphenyl	>UL	NA
SW-4	2,3',4-Trihydroxydiphenyl	>UL	NA
377-4	m-Benzenedisulfonic acid	>UL	NA
SW-3	2,3',4-Trihydroxydiphenyl	>UL	NA
SG-7	2,3',4-Trihydroxydiphenyl	>UL	NA
SG-5	2,3',4-Trihydroxydiphenyl	>UL	NA
SG-6	Benzenesulfonic acid	<ll but="">10%</ll>	NA
	2,3',4-Trihydroxydiphenyl	>UL	NA
SW-2 LANGAN	Benzenesulfonic acid	<ll but="">10%</ll>	NA
JVV-Z LAINGAIN	2,3',4-Trihydroxydiphenyl	>UL	NA

Sample Locations	Compound	MS Recovery	MSD Recovery
SW-1 LANGAN	Benzenesulfonic acid	<ll but="">10%</ll>	NA
SW-1 LANGAN	2,3',4-Trihydroxydiphenyl	>UL	NA
SW-1	Benzenesulfonic acid	<ll but="">10%</ll>	NA
300-1	2,3',4-Trihydroxydiphenyl	>UL	NA
SG-3	2,3',4-Trihydroxydiphenyl	>UL	NA
SG-8	2,3',4-Trihydroxydiphenyl	>UL	NA
	p-Phenolsulfonic acid	<ll but="">10%</ll>	<ll but="">10%</ll>
SED-102	Benzenesulfonic acid	<10%	<10%
3ED-102	Resorcinol	<10%	<10%
	2,3',4-Trihydroxydiphenyl	<10%	<10%
	m-Benzenedisulfonic acid	<ll but="">10%</ll>	NA
SED-103	Benzenesulfonic acid	<ll but="">10%</ll>	NA
SED-103	Resorcinol	<10%	NA
	2,3',4-Trihydroxydiphenyl	<10%	NA
	m-Benzenedisulfonic acid	<10%	NA
	p-Phenolsulfonic acid	<10%	NA
SED-101	Benzenesulfonic acid	<ll but="">10%</ll>	NA
	Resorcinol	<10%	NA
	2,3',4-Trihydroxydiphenyl	<10%	NA
	m-Benzenedisulfonic acid	<10%	NA
DUP090414	p-Phenolsulfonic acid	<10%	NA
	Benzenesulfonic acid	<ll but="">10%</ll>	NA
	Resorcinol	<10%	NA
	2,3',4-Trihydroxydiphenyl	<10%	NA

AC Acceptable NA Not Analyzed

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
the upper central limit (LIL)	Non-detect	No Action
> the upper control limit (UL)	Detect	J
the lower central limit (LL) but > 400/	Non-detect	UJ
< the lower control limit (LL) but > 10%	Detect	J
< 10%	Non-detect	R
< 10%	Detect	J
Parent sample concentration > four times the MS/MSD	Detect	No Action
spiking solution concentration.	Non-detect	NO ACTION

Please note the laboratory analyzed a matrix spike (MS) on every sample associated with this SDG. This additional measure of quality control was adopted by the laboratory as there is no surrogate standard or internal standard used for this analysis. The MS is being used as a measure of accuracy for the analysis. The sediment sample matrix spikes generally exhibited recoveries below ten percent for the following compounds: Resorcinol, 2,3',4-Trihydroxydiphenyl and p-Phenolsulfonic acid. The low matrix spike

recovery demonstrates a loss of these compounds due to sample matrix interference. The Lab Control Samples (LCS) associated with these samples generally exhibited acceptable recoveries. Compounds exhibiting recovery less than ten percent in the matrix spike that were non-detect in the associated parent sample were qualified as rejected (R).

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices and two times the CRDL for soil matrices.

MS/MSD analysis was performed instead of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPDs.

5. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for the field duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	m-Benzenedisulfonic acid	140	160	13.3%
SED-101/ DUP090414	p-Phenolsulfonic acid	20 U	19 U	AC
	Benzenesulfonic acid	20 U	19 U	AC
	Resorcinol	20 U	19 U	AC
	2,3',4-Trihydroxydiphenyl	59 U	58 U	AC
	m-Benzenedisulfonic acid	3700	3200	14.5%
SG-4/ DUP090514	p-Phenolsulfonic acid	150	240	AC
	Benzenesulfonic acid	54	51	AC
	Resorcinol	50 U	50 U	AC
	2,3',4-Trihydroxydiphenyl	50 U	50 U	AC

AC Acceptable
U Not detected

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. Laboratory Control Sample/Low Laboratory Control Sample (LCS/LLCS) Analysis

The LCS/LLCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LLCS analysis must exhibit a percent recovery between the control limits of 60% and 140%.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

The laboratory analyzed a Low Laboratory Control Sample (LLCS) that was spiked at a concentration at or below the reporting limit. Since the results below the reporting limit are not reported for this method, the LLCS recoveries were not evaluated as a measure of accuracy.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Sample results associated with compound that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table.

Sample ID	Compound	Original Analysis	Diluted Analysis	Reported Analysis
SW-5 LANGAN	m-Benzenedisulfonic acid		1300 D	1300 D
SW-4 LANGAN	m-Benzenedisulfonic acid		1300 D	1300 D
SED-102	m-Benzenedisulfonic acid		5000 D	5000 D
SW-3 LANGAN	m-Benzenedisulfonic acid		1700 D	1700 D
SG-7	m-Benzenedisulfonic acid		1900 D	1900 D
SG-5	m-Benzenedisulfonic acid		2400 D	2400 D
SG-4	m-Benzenedisulfonic acid		3700 D	3700 D
SG-3	m-Benzenedisulfonic acid		3100 D	3100 D
SG-8	m-Benzenedisulfonic acid		1000 D	1000 D
DUP090514	m-Benzenedisulfonic acid		3200 D	3200 D

Note: In the instance where both the original analysis and the diluted analysis sample results exhibited a concentration greater than and/or less than the calibration linear range of the instrument; the sample result exhibiting the greatest concentration will be reported as the final result.

Sample results associated with compounds exhibiting concentrations greater than the linear range are qualified as documented in the table below when reported as the final reported sample result.

Reported Sample Results	Qualification
Diluted sample result within calibration range	D
Diluted sample result less than the calibration range	DJ
Diluted sample result greater than the calibration range	EDJ
Original sample result greater than the calibration range	EJ

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SULFONIC ACID

Site Specific COCs: LCMS/MS method based on TestAmerica-Burlington's SOP BR-LC-005	Rep	orted	Performance Acceptable		Not Required
on restamenta Banington's Cor Bit 20 000	No	Yes	No	Yes	Required
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		Х		Х	
Reporting limits (units)		Х		Х	
Blanks					
A. Method blanks		Х		Х	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Low Laboratory Control Sample (LCS) %R		Х		Х	
Matrix Spike (MS) %R		Х	Х		
Matrix Spike Duplicate (MSD) %R		Х	Х		
MS/MSD Precision (RPD)		Х		Х	
Field/Lab Duplicate (RPD)		Х		Х	
Dilution Factor		Х		Х	
Moisture Content		Х		Х	
Tier III Validation					
Initial calibration %RSD or correlation coefficient		Х		Х	
Continuing calibration %R		Х		Х	
Raw Data		Х		Х	
Transcription/calculation errors present		Х		Х	
Reporting limits adjusted to reflect sample dilutions %RSD = relative standard deviation, %R = percent		Х		Х	

[%]RSD - relative standard deviation, %R - percent recovery, RPD - relative percent difference,

[%]D – difference

FORMALDEHYDE ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Formaldehyde by SW846 8315A	Water	3 days from collection to derivatization and 3 days from derivatization to analysis	Cool to <6 °C
	Soil	14 Days to extraction and 40 days from extraction to analysis	Cool to <6 °C

The analyses that exceeded the holding are presented in the following table.

Sample Locations	Holding Time	Criteria
SG-5 SG-6 SW-2 LANGAN SW-1 LANGAN	Analysis Completed in 4 days	3 Days

Sample results associated with sample locations analyzed by analytical method SW-846 8315A were qualified, as specified in the table below. All other holding times were met.

	Qualification		
Criteria	Detected Analytes	Non-detect Analytes	
Analysis completed less than two times holding time	J	UJ	

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

A maximum RSD of 20% is allowed or a correlation coefficient greater than 0.99.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (15%).

All calibration standard recoveries were within the control limit.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS/MSD Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

The MS/MSD analysis exhibited recoveries and RPD within the control limits.

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices and two times the CRDL for soil matrices.

MS/MSD analysis was performed instead of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPDs.

5. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for the field duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SED-101/ DUP090414	Formaldehyde	390	690	AC
SG-4/ DUP090514	Formaldehyde	50 U	9.7 J	AC

AC Acceptable U Not detected

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All analytes associated with the LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR FORMALDEHYDE

Formaldehyde: SW846 8315A	Reported		Performance Acceptable		Not Required	
	No	Yes	No	Yes	Roquirou	
Miscellaneous Instrumentation						
Tier II Validation						
Holding times		Х	Х			
Reporting limits (units)		Х		Х		
Blanks						
A. Method blanks		Х		Х		
B. Equipment blanks		Х		Х		
Laboratory Control Sample (LCS) %R		Х		Х		
Laboratory Control Sample Duplicate (LCSD) %R		Х		Х		
LCS/LCSD Precision (RPD)		Х		Х		
Matrix Spike (MS) %R		Х		Х		
Matrix Spike Duplicate (MSD) %R		Х		Х		
MS/MSD Precision (RPD)		Х		Х		
Field/Lab Duplicate (RPD)		Х		Х		
Dilution Factor		Х		Х		
Moisture Content		Х		Х		
Tier III Validation		•		•	•	
Initial calibration %RSD or correlation coefficient		Х		Х		
Continuing calibration %R		Х		Х		
Raw Data		Х		Х		
Transcription/calculation errors present		Х		Х		
Reporting limits adjusted to reflect sample dilutions %RSD – relative standard deviation %R - percent		Х		Х		

[%]RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference,

[%]D – difference

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 300.0. Data were reviewed in accordance with USEPA National Functional Guidelines of July 2002 as modified or applicable to the method, using method requirements and professional judgment as criteria for qualification.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

Concentration (C) Qualifiers

- U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
- B The reported value was obtained from a reading less than the contract-required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).

Quantitation (Q) Qualifiers

- E The reported value is estimated due to the presence of interference.
- N Spiked sample recovery is not within control limits.
- Duplicate analysis is not within control limits.

Validation Qualifiers

- J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
- UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- UB Analyte considered non-detect at the listed value due to associated blank contamination.
- R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict

QC serves to increase confidence in data but any value potentially contains error.	

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
0 1/ 1 554 000 0	Water	28 days from collection to analysis	Cool to <6 °C.
Sulfate by EPA 300.0	Soil	28 days from collection to analysis	Cool to <6 °C.

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 and all initial calibration verification standard recoveries were within control limits.

All calibration standard recoveries were within the control limit.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The

MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD analysis exhibited recoveries and RPD within the control limits.

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices and two times the CRDL for soil matrices.

MS/MSD analysis was performed instead of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPDs.

5. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for the field duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SED-101/ DUP090414	Sulfate	59	120	68.2%
SG-4/ DUP090514	Sulfate	92	93	1.1%

AC Acceptable

U Not detected

Sulfate results associated with sample locations SED-101 and DUP090414 exhibited a field duplicate RPD greater than the control limit. The associated sample results for the listed sample locations were qualified as estimated.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit a percent recovery between the control limits of 80% and 120%.

All analytes associated with the LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 300.0	Rep	orted	Performance Acceptable		Not Required
	No	Yes	No	Yes	Required
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		Х		X	
Reporting limits (units)		Х		Х	
Blanks					
C. Instrument blanks		Х		Х	
D. Method blanks		Х		Х	
E. Equipment blanks		Х		Х	
Laboratory Control Sample (LCS) %R		Х		Х	
Laboratory Control Sample Duplicate (LCSD) %R		Х		Х	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		Х	Х		
Dilution Factor		Х		Х	
Moisture Content		Х		X	
Tier III Validation					
Initial calibration %RSD or correlation coefficient		Х		Х	
Continuing calibration %R		Х		Х	
Raw Data		Х		Х	
Transcription/calculation errors present		Х		Х	
Reporting limits adjusted to reflect sample dilutions		X		X	

[%]RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference, %D – difference

Validation Performed By: __Jeffrey L. Davin

Signature:

Date: October 20, 2014

Peer Review: Dennis Capria

Date: October 23, 2014

CHAIN OF CUSTODY/LABORAOTRY QUALIFIER DEFINITIONS/ CORRECTED SAMPLE ANALYSIS DATA SHEETS

Client Sample ID: SED-103

Lab Sample ID: 180-36441-2 Date Sampled: 09/04/2014 1220

Client Matrix: Solid % Moisture: 23.4 Date Received: 09/06/2014 0915

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B Analysis Batch: 180-117276 Instrument ID: CHHP3 Prep Method: 5030B Prep Batch: 180-117277 Lab File ID: 3090806.D Dilution: Initial Weight/Volume: 1.0 5.0003 g Analysis Date: 09/08/2014 0708 Final Weight/Volume: 5 mL

Prep Date: 09/08/2014 0418

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1-Trichloroethane		ND		0.63	6.5
1,1,2,2-Tetrachloroethane		ND		0.94	6.5
1,1,2-Trichloro-1,2,2-trifluoro	oethane	ND		1.4	6.5
1,1,2-Trichloroethane		ND		1.1	6.5
1,1-Dichloroethane		ND		0.75	6.5
1,1-Dichloroethene		ND		1.1	6.5
1,2,4-Trichlorobenzene		ND		1.2	6.5
1,2-Dibromo-3-Chloropropa	ne	ND		0.98	6.5
1,2-Dichlorobenzene		ND		1.0	6.5
1.2-Dichloroethane		ND		0.80	6.5
1,2-Dichloropropane		ND		0.71	6.5
1,3-Dichlorobenzene		ND		0.86	6.5
1,4-Dichlorobenzene		ND		0.83	6.5
2-Butanone (MEK)		ND		1.2	6.5
2-Hexanone		ND		0.90	6.5
4-Methyl-2-pentanone (MIBI	()	ND		0.85	6.5
Acetone	~)	ND		6.5	26
Benzene		ND		0.88	6.5
Bromoform		ND		0.58	6.5
Bromomethane		ND	*	0.96	6.5
Carbon disulfide		ND		0.67	6.5
Carbon distillide				0.58	
		ND			6.5
Chlorobenzene		ND		0.99	6.5
Chlorodibromomethane		ND		0.93	6.5
Chloroethane		ND		2.0	6.5
Chloroform		ND		0.76	6.5
Chloromethane		ND		1.1	6.5
cis-1,2-Dichloroethene		ND		0.92	6.5
cis-1,3-Dichloropropene		ND		0.88	6.5
Cyclohexane		ND		0.48	6.5
Dichlorobromomethane		ND		0.73	6.5
Dichlorodifluoromethane		ND		0.87	6.5
Ethyl ether		40		0.76	6.5
Ethylbenzene		ND		0.84	6.5
1,2-Dibromoethane		ND		1.1	6.5
sopropylbenzene		ND		0.89	6.5
Methyl acetate		ND		1.2	6.5
Methyl tert-butyl ether		ND		0.98	6.5
Methylcyclohexane		ND		0.95	6.5
Methylene Chloride		ND		0.88	6.5
Styrene		ND		0.92	6.5
Tetrachloroethene		ND		0.89	6.5
Toluene		ND		0.95	6.5
trans-1,2-Dichloroethene		ND		0.78	6.5
trans-1,3-Dichloropropene		ND		0.78	6.5
Trichloroethene		ND		0.86	6.5

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Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SED-103

Lab Sample ID: 180-36441-2 Date Sampled: 09/04/2014 1220

Client Matrix: Solid % Moisture: 23.4 Date Received: 09/06/2014 0915

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B Analysis Batch: 180-117276 Instrument ID: CHHP3
Prep Method: 5030B Prep Batch: 180-117277 Lab File ID: 3090806.D

Dilution: 1.0 Initial Weight/Volume: 5.0003 g

Analysis Date: 09/08/2014 0708 Final Weight/Volume: 5 mL

Prep Date: 09/08/2014 0418

Toluene-d8 (Surr)

Analyte DryWt Corrected: Y Result (ug/Kg) Qualifier MDL RL
Trichlorofluoromethane ND 1.2 6.5
Vinyl chloride ND 0.61 6.5

Surrogate%RecQualifierAcceptance Limits1,2-Dichloroethane-d4 (Surr)11652 - 1244-Bromofluorobenzene (Surr)8663 - 120Dibromofluoromethane (Surr)10968 - 121

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Client Sample ID: SED-102

Lab Sample ID: 180-36441-4 Date Sampled: 09/04/2014 1310

Client Matrix: Solid % Moisture: 32.0 Date Received: 09/06/2014 0915

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B Analysis Batch: 180-117276 Instrument ID: CHHP3 Prep Method: 5030B Prep Batch: 180-117277 Lab File ID: 3090807.D Dilution: Initial Weight/Volume: 1.0 5.0002 g Analysis Date: 09/08/2014 0730 Final Weight/Volume: 5 mL

Prep Date: 09/08/2014 0418

Analyte	DryWt Corrected: Y		Res	ult (ug/Kg)	Qualifier	MDL	RL	
1,1,1-Trichloroethane			ND			0.72	7.4	
1,1,2,2-Tetrachloroethane			ND			1.1	7.4	
1,1,2-Trichloro-1,2,2-trifluoroet	thane		ND			1.6	7.4	
1,1,2-Trichloroethane			ND			1.2	7.4	
1,1-Dichloroethane			ND			0.85	7.4	
1,1-Dichloroethene			ND			1.2	7.4	
1,2,4-Trichlorobenzene			ND	UJ		1.3	7.4	
1,2-Dibromo-3-Chloropropane			ND	UJ	*	1.1	7.4	
1,2-Dichlorobenzene			ND	UJ	*	1.2	7.4	
1,2-Dichloroethane			ND			0.90	7.4	
1,2-Dichloropropane			ND			0.80	7.4	
1,3-Dichlorobenzene			ND	UJ	*	0.97	7.4	
1,4-Dichlorobenzene			ND	UJ	*	0.94	7.4	
2-Butanone (MEK)			ND			1.3	7.4	
2-Hexanone			ND			1.0	7.4	
4-Methyl-2-pentanone (MIBK)			ND			0.96	7.4	
Acetone		29	19	UB	J-	7.4	29	
Benzene		29	ND	UB	Ü	0.99	7.4	
Bromoform			ND			0.65	7.4	
Bromomethane			ND		*	1.1	7.4	
Carbon disulfide			ND			0.75	7.4	
Carbon tetrachloride			ND			0.66	7.4	
Chlorobenzene			ND			1.1	7.4	
Chlorodibromomethane			ND			1.0	7.4	
Chloroethane			ND			2.3	7.4	
Chloroform			ND			0.86	7.4	
Chloromethane			ND			1.3	7.4	
cis-1,2-Dichloroethene			ND			1.0	7.4	
cis-1,3-Dichloropropene			ND	1		1.0	7.4	
Cyclohexane			37	J		0.55	7.4	
Dichlorobromomethane			ND			0.83	7.4	
Dichlorodifluoromethane			ND			0.98	7.4	
Ethyl ether			1.6		J	0.86	7.4	
Ethylbenzene			2.2		J	0.95	7.4	
1,2-Dibromoethane			ND			1.3	7.4	
Isopropylbenzene			2.8		J	1.0	7.4	
Methyl acetate			ND			1.3	7.4	
Methyl tert-butyl ether			ND			1.1	7.4	
Methylcyclohexane			100			1.1	7.4	
Methylene Chloride			ND			0.99	7.4	
Styrene			ND			1.0	7.4	
Tetrachloroethene			ND			1.0	7.4	
Toluene			ND			1.1	7.4	
trans-1,2-Dichloroethene			ND			0.88	7.4	
trans-1,3-Dichloropropene			ND			0.88	7.4	
Trichloroethene			ND			0.97	7.4	

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SED-102

Lab Sample ID: 180-36441-4 Date Sampled: 09/04/2014 1310

Client Matrix: Solid % Moisture: 32.0 Date Received: 09/06/2014 0915

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B Analysis Batch: 180-117276 Instrument ID: CHHP3
Prep Method: 5030B Prep Batch: 180-117277 Lab File ID: 3090807.D

Dilution: 1.0 Initial Weight/Volume: 5.0002 g

Analysis Date: 09/08/2014 0730 Final Weight/Volume: 5 mL

Prep Date: 09/08/2014 0418

Analyte DryWt Corrected: Y Result (ug/Kg) Qualifier MDL RL
Trichlorofluoromethane ND 1.4 7.4
Vinyl chloride ND 0.69 7.4

Surrogate %Rec Qualifier Acceptance Limits 1,2-Dichloroethane-d4 (Surr) 109 52 - 124 4-Bromofluorobenzene (Surr) 85 63 - 120 Dibromofluoromethane (Surr) 68 - 121 110 Toluene-d8 (Surr) 116 72 - 127

Client Sample ID: SED-101

Lab Sample ID: 180-36441-6 Date Sampled: 09/04/2014 1400

Client Matrix: Solid % Moisture: 8.8 Date Received: 09/06/2014 0915

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B Analysis Batch: 180-117276 Instrument ID: CHHP3 Prep Method: 5030B Prep Batch: 180-117277 Lab File ID: 3090813.D Dilution: Initial Weight/Volume: 1.0 5.0008 g Analysis Date: 09/08/2014 0945 Final Weight/Volume: 5 mL

Prep Date: 09/08/2014 0418

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1-Trichloroethane		ND		0.53	5.5
1,1,2,2-Tetrachloroethane		ND		0.79	5.5
1,1,2-Trichloro-1,2,2-trifluor	pethane	ND		1.2	5.5
1,1,2-Trichloroethane		ND		0.91	5.5
1,1-Dichloroethane		ND		0.63	5.5
1,1-Dichloroethene		ND		0.93	5.5
1,2,4-Trichlorobenzene		ND		0.97	5.5
1,2-Dibromo-3-Chloropropa	ne	ND		0.82	5.5
1,2-Dichlorobenzene		ND		0.87	5.5
1,2-Dichloroethane		ND		0.67	5.5
1,2-Dichloropropane		ND		0.60	5.5
1,3-Dichlorobenzene		ND		0.72	5.5
1,4-Dichlorobenzene		ND		0.70	5.5
2-Butanone (MEK)		ND		0.97	5.5
2-Hexanone		ND		0.76	5.5
4-Methyl-2-pentanone (MIB	K)	ND		0.70	5.5
Acetone		ND		5.5	22
Benzene		ND		0.74	5.5
Bromoform		ND		0.49	5.5
Bromomethane			*	0.49	
		ND			5.5
Carbon disulfide		ND	*	0.56	5.5
Carbon tetrachloride		ND		0.49	5.5
Chlorobenzene		ND		0.83	5.5
Chlorodibromomethane		ND		0.78	5.5
Chloroethane		ND	_	1.7	5.5
Chloroform		ND		0.64	5.5
Chloromethane		ND		0.93	5.5
cis-1,2-Dichloroethene		ND		0.77	5.5
cis-1,3-Dichloropropene		ND		0.74	5.5
Cyclohexane		ND		0.41	5.5
Dichlorobromomethane		ND		0.62	5.5
Dichlorodifluoromethane		ND		0.73	5.5
Ethyl ether		0.66	J	0.64	5.5
Ethylbenzene		ND		0.70	5.5
1,2-Dibromoethane		ND		0.95	5.5
Isopropylbenzene		ND		0.74	5.5
Methyl acetate		ND		0.99	5.5
Methyl tert-butyl ether		ND		0.82	5.5
Methylcyclohexane		ND		0.80	5.5
Methylene Chloride		ND		0.74	5.5
Styrene		ND		0.77	5.5
Tetrachloroethene		ND		0.75	5.5
Toluene		ND		0.80	5.5
trans-1,2-Dichloroethene		ND		0.65	5.5
trans-1,3-Dichloropropene		ND		0.66	5.5

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Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SED-101

Lab Sample ID: 180-36441-6 Date Sampled: 09/04/2014 1400

Client Matrix: Solid % Moisture: 8.8 Date Received: 09/06/2014 0915

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B Analysis Batch: 180-117276 Instrument ID: CHHP3
Prep Method: 5030B Prep Batch: 180-117277 Lab File ID: 3090813.D

Dilution: 1.0 Initial Weight/Volume: 5.0008 g

Analysis Date: 09/08/2014 0945 Final Weight/Volume: 5 mL

Prep Date: 09/08/2014 0418

Toluene-d8 (Surr)

Analyte DryWt Corrected: Y Result (ug/Kg) Qualifier MDL RL
Trichlorofluoromethane ND 1.0 5.5
Vinyl chloride ND 0.51 5.5

Surrogate%RecQualifierAcceptance Limits1,2-Dichloroethane-d4 (Surr)10252 - 1244-Bromofluorobenzene (Surr)9263 - 120Dibromofluoromethane (Surr)10068 - 121

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Client Sample ID: DUP090414

Lab Sample ID: 180-36441-12 Date Sampled: 09/04/2014 0000

Client Matrix: Solid % Moisture: 11.7 Date Received: 09/06/2014 0915

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B Analysis Batch: 180-117276 Instrument ID: CHHP3 Prep Method: 5030B Prep Batch: 180-117277 Lab File ID: 3090812.D Dilution: Initial Weight/Volume: 1.0 5.0006 g Analysis Date: 09/08/2014 0923 Final Weight/Volume: 5 mL

Prep Date: 09/08/2014 0418

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1-Trichloroethane		ND		0.55	5.7
1,1,2,2-Tetrachloroethane		ND		0.81	5.7
1,1,2-Trichloro-1,2,2-trifluor	oethane	ND		1.2	5.7
1,1,2-Trichloroethane		ND		0.94	5.7
1,1-Dichloroethane		ND		0.65	5.7
1,1-Dichloroethene		ND		0.96	5.7
1,2,4-Trichlorobenzene		ND		1.0	5.7
1,2-Dibromo-3-Chloropropa	ane	ND		0.85	5.7
1,2-Dichlorobenzene		ND		0.90	5.7
1,2-Dichloroethane		ND		0.69	5.7
1,2-Dichloropropane		ND		0.62	5.7
1,3-Dichlorobenzene		ND		0.74	5.7
1,4-Dichlorobenzene		ND		0.72	5.7
2-Butanone (MEK)		ND		1.0	5.7
2-Hexanone		ND		0.78	5.7
4-Methyl-2-pentanone (MIB	sK)	ND		0.74	5.7
Acetone	,	ND		5.7	23
Benzene		ND		0.76	5.7
Bromoform		ND		0.50	5.7
Bromomethane		ND	* -	0.84	5.7
Carbon disulfide		ND		0.58	5.7
Carbon tetrachloride		ND		0.51	5.7
Chlorobenzene		ND		0.86	5.7
Chlorodibromomethane		ND		0.80	5.7
Chloroethane		ND	*	1.8	5.7
Chloroform		ND		0.66	5.7
Chloromethane		ND		0.96	5.7
cis-1,2-Dichloroethene		ND		0.80	5.7
cis-1,3-Dichloropropene		ND		0.77	5.7
Cyclohexane		ND		0.42	5.7
Dichlorobromomethane		ND		0.64	5.7
Dichlorodifluoromethane		ND		0.75	5.7
Ethyl ether		ND		0.66	5.7
Ethylbenzene		ND		0.73	5.7
1,2-Dibromoethane		ND		0.98	5.7
Isopropylbenzene		ND		0.77	5.7
Methyl acetate		ND		1.0	5.7
Methyl tert-butyl ether		ND		0.85	5.7
Methylcyclohexane		ND		0.82	5.7
Methylene Chloride		ND		0.76	5.7
Styrene		ND		0.76	5.7
Tetrachloroethene		ND		0.80	5.7
Toluene		ND ND		0.77	5. <i>7</i> 5.7
trans-1,2-Dichloroethene		ND ND		0.67	5.7 5.7
trans-1,3-Dichloropropene				0.68	
		ND			5.7 5.7
Trichloroethene		ND		0.75	5.7

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: DUP090414

Lab Sample ID: 180-36441-12 Date Sampled: 09/04/2014 0000

Client Matrix: Solid % Moisture: 11.7 Date Received: 09/06/2014 0915

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B Analysis Batch: 180-117276 Instrument ID: CHHP3
Prep Method: 5030B Prep Batch: 180-117277 Lab File ID: 3090812.D

Dilution: 1.0 Initial Weight/Volume: 5.0006 g

Analysis Date: 09/08/2014 0923 Final Weight/Volume: 5 mL

Prep Date: 09/08/2014 0418

Analyte DryWt Corrected: Y Result (ug/Kg) Qualifier MDL RL
Trichlorofluoromethane ND 1.0 5.7
Vinyl chloride ND 0.53 5.7

Surrogate %Rec Qualifier Acceptance Limits 1,2-Dichloroethane-d4 (Surr) 107 52 - 124 4-Bromofluorobenzene (Surr) 93 63 - 120 Dibromofluoromethane (Surr) 105 68 - 121 Toluene-d8 (Surr) 102 72 - 127

Client Sample ID: SW-5 LANGAN

 Lab Sample ID:
 180-36441-1
 Date Sampled: 09/04/2014 1125

 Client Matrix:
 Water
 Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-117991 Instrument ID: CHHP5

Prep Method: 5030C Prep Batch: N/A Lab File ID: 50914015.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/14/2014 1745 Final Weight/Volume: 5 mL

Prep Date: 09/14/2014 1745

nalyte	Result (ug/L)	Qualifier	MDL	RL
,1,1-Trichloroethane	ND		0.29	1.0
,1,2,2-Tetrachloroethane	ND		0.20	1.0
,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
,1,2-Trichloroethane	ND		0.20	1.0
,1-Dichloroethane	ND		0.12	1.0
,1-Dichloroethene	ND		0.30	1.0
,2,4-Trichlorobenzene	ND		0.27	1.0
,2-Dibromo-3-Chloropropane	ND		0.14	1.0
,2-Dichlorobenzene	0.91	J	0.15	1.0
,2-Dichloroethane	ND		0.21	1.0
,2-Dichloropropane	ND		0.095	1.0
,3-Dichlorobenzene	ND		0.11	1.0
,4-Dichlorobenzene	ND		0.21	1.0
-Butanone (MEK)	ND		0.55	5.0
-Hexanone	ND		0.16	5.0
-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
cetone	12 UB		2.5	5.0
enzene	ND		0.11	1.0
romoform	ND		0.19	1.0
romomethane	ND		0.31	1.0
arbon disulfide	ND		0.21	1.0
arbon tetrachloride	ND		0.14	1.0
hlorobenzene	0.32	J	0.14	1.0
hlorodibromomethane	ND	· ·	0.14	1.0
hloroethane	ND		0.21	1.0
Chloroform	ND		0.17	1.0
Chloromethane	ND		0.28	1.0
is-1,2-Dichloroethene	ND		0.24	1.0
is-1,3-Dichloropropene	ND		0.19	1.0
	ND		0.19	1.0
cyclohexane vichlorobromomethane	ND		0.23	1.0
vichlorodifluoromethane	ND		0.13	1.0
thyl ether	7.9		0.19	1.0
-	7.9 ND		0.082	1.0
thylbenzene ,2-Dibromoethane	ND		0.23	1.0
	ND		0.16	
sopropylbenzene	ND UD		0.16 0.14	1.0
lethyl acetate				1.0
lethyl tert-butyl ether	ND ND		0.18	1.0
lethylcyclohexane	ND		0.26	1.0
lethylene Chloride	ND		0.13	1.0
tyrene	ND		0.097	1.0
etrachloroethene	ND		0.15	1.0
oluene	ND		0.15	1.0
ans-1,2-Dichloroethene	ND		0.17	1.0
rans-1,3-Dichloropropene	ND		0.15	1.0
richloroethene	ND		0.14	1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-5 LANGAN

Lab Sample ID: 180-36441-1 Date Sampled: 09/04/2014 1125

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-117991 Instrument ID: CHHP5
Prep Method: 5030C Prep Batch: N/A Lab File ID: 50914015.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/14/2014 1745 Final Weight/Volume: 5 mL
Prep Date: 09/14/2014 1745

Analyte Result (ug/L) Qualifier MDL RL

Trichlorofluoromethane ND 0.20 1.0
Vinyl chloride ND 0.23 1.0

%Rec Surrogate Qualifier Acceptance Limits 1,2-Dichloroethane-d4 (Surr) 122 64 - 135 4-Bromofluorobenzene (Surr) 97 70 - 118 Dibromofluoromethane (Surr) 126 70 - 128 Toluene-d8 (Surr) 108 71 - 118

Client Sample ID: SW-4 LANGAN

Lab Sample ID: 180-36441-3 Date Sampled: 09/04/2014 1235

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-117991 Instrument ID: CHHP5
Prep Method: 5030C Prep Batch: N/A Lab File ID: 50914016.D
Dilution: 1.0 Initial Weight/Volume: 5 mL

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/14/2014 1809 Final Weight/Volume: 5 mL

Prep Date: 09/14/2014 1809

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	ND		0.29	1.0
1,1,2,2-Tetrachloroethane	ND		0.20	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
1,1,2-Trichloroethane	ND		0.20	1.0
1,1-Dichloroethane	ND		0.12	1.0
1,1-Dichloroethene	ND		0.30	1.0
1,2,4-Trichlorobenzene	ND		0.27	1.0
1,2-Dibromo-3-Chloropropane	ND		0.14	1.0
1,2-Dichlorobenzene	0.89	J	0.15	1.0
1,2-Dichloroethane	ND		0.21	1.0
1,2-Dichloropropane	ND		0.095	1.0
1,3-Dichlorobenzene	ND		0.11	1.0
1,4-Dichlorobenzene	ND		0.21	1.0
2-Butanone (MEK)	ND		0.55	5.0
2-Hexanone	ND		0.16	5.0
4-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
Acetone	16 UB		2.5	5.0
Benzene	ND		0.11	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.31	1.0
Carbon disulfide	ND		0.21	1.0
Carbon tetrachloride	ND		0.14	1.0
Chlorobenzene	0.32	J	0.14	1.0
Chlorodibromomethane	ND	· ·	0.14	1.0
Chloroethane	ND		0.21	1.0
Chloroform	ND		0.17	1.0
Chloromethane	ND		0.28	1.0
cis-1,2-Dichloroethene	ND		0.24	1.0
cis-1,3-Dichloropropene	ND		0.19	1.0
Cyclohexane	ND		0.25	1.0
Dichlorobromomethane	ND		0.13	1.0
Dichlorodifluoromethane	ND		0.19	1.0
Ethyl ether	6.6		0.082	1.0
Ethylbenzene	ND		0.23	1.0
1,2-Dibromoethane	ND		0.18	1.0
sopropylbenzene	ND		0.16	1.0
Methyl acetate	ND		0.14	1.0
Methyl tert-butyl ether	ND ND		0.14	1.0
Methylcyclohexane	ND ND			
Methylene Chloride	ND ND		0.26 0.13	1.0 1.0
	ND ND		0.13	1.0
Styrene				
Tetrachloroethene Toluene	ND ND		0.15	1.0
	ND ND		0.15	1.0
trans-1,2-Dichloroethene	ND		0.17	1.0
trans-1,3-Dichloropropene	ND		0.15	1.0
Trichloroethene	ND		0.14	1.0

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Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-4 LANGAN

Toluene-d8 (Surr)

Lab Sample ID: 180-36441-3 Date Sampled: 09/04/2014 1235

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-117991 Instrument ID: CHHP5
Prep Method: 5030C Prep Batch: N/A Lab File ID: 50914016.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/14/2014 1809 Final Weight/Volume: 5 mL Prep Date: 09/14/2014 1809

Analyte Result (ug/L) Qualifier MDL RL

112

TrichlorofluoromethaneND0.201.0Vinyl chlorideND0.231.0

Surrogate%RecQualifierAcceptance Limits1,2-Dichloroethane-d4 (Surr)12164 - 1354-Bromofluorobenzene (Surr)9870 - 118Dibromofluoromethane (Surr)12870 - 128

Client Sample ID: SW-3 LANGAN

 Lab Sample ID:
 180-36441-5
 Date Sampled: 09/04/2014 1320

 Client Matrix:
 Water
 Date Received: 09/06/2014 0915

54t6 110001104. 00/00/2011 0

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915013.D
Dilution: 1.0 Initial Weight/Volume: 5 mL

Dilution: 1.0 Initial Weight/Volume: 5 mL Analysis Date: 09/15/2014 1604 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 1604

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	ND	Qualifier	0.29	1.0
1,1,2,2-Tetrachloroethane	ND		0.20	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
1,1,2-Trichloroethane	ND		0.20	1.0
1,1-Dichloroethane	ND		0.12	1.0
1,1-Dichloroethene	ND		0.30	1.0
1,2,4-Trichlorobenzene	ND		0.27	1.0
1,2-Dibromo-3-Chloropropane	ND		0.14	1.0
1,2-Dichlorobenzene	0.94	J	0.15	1.0
1,2-Dichloroethane	ND	· ·	0.21	1.0
1,2-Dichloropropane	ND		0.095	1.0
1,3-Dichlorobenzene	ND		0.11	1.0
1,4-Dichlorobenzene	0.22	J	0.21	1.0
2-Butanone (MEK)	ND	ŭ	0.55	5.0
2-Hexanone	ND		0.16	5.0
4-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
Acetone	14 UB		2.5	5.0
Benzene	ND UB		0.11	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.31	1.0
Carbon disulfide	ND		0.21	1.0
Carbon tetrachloride	ND		0.14	1.0
Chlorobenzene	0.35	J	0.14	1.0
Chlorodibromomethane	ND		0.14	1.0
Chloroethane	ND		0.21	1.0
Chloroform	ND		0.17	1.0
Chloromethane	ND		0.28	1.0
cis-1,2-Dichloroethene	ND		0.24	1.0
cis-1,3-Dichloropropene	ND		0.19	1.0
Cyclohexane	ND		0.25	1.0
Dichlorobromomethane	ND		0.13	1.0
Dichlorodifluoromethane	ND		0.19	1.0
Ethyl ether	5.5		0.082	1.0
Ethylbenzene	ND		0.23	1.0
1,2-Dibromoethane	ND		0.18	1.0
Isopropylbenzene	ND		0.16	1.0
Methyl acetate	ND		0.14	1.0
Methyl tert-butyl ether	ND		0.18	1.0
Methylcyclohexane	ND		0.26	1.0
Methylene Chloride	ND UJ		0.13	1.0
Styrene	ND		0.097	1.0
Tetrachloroethene	ND		0.15	1.0
Toluene	ND		0.15	1.0
trans-1,2-Dichloroethene	ND		0.17	1.0
trans-1,3-Dichloropropene	ND		0.15	1.0
Trichloroethene	ND		0.14	1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-3 LANGAN

Lab Sample ID: 180-36441-5 Date Sampled: 09/04/2014 1320

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915013.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1604 Final Weight/Volume: 5 mL Prep Date: 09/15/2014 1604

Analyte Result (ug/L) Qualifier MDL RL

TrichlorofluoromethaneND0.201.0Vinyl chlorideND0.231.0

Surrogate %Rec Qualifier Acceptance Limits 1,2-Dichloroethane-d4 (Surr) 99 64 - 135 4-Bromofluorobenzene (Surr) 102 70 - 118 Dibromofluoromethane (Surr) 70 - 128 101 Toluene-d8 (Surr) 106 71 - 118

Client Sample ID: SG-7

 Lab Sample ID:
 180-36441-7
 Date Sampled: 09/04/2014 1430

 Client Matrix:
 Water
 Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6

Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915014.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1628 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 1628

nalyte	Result (ug/L)	Qualifier	MDL	RL
,1,1-Trichloroethane	ND		0.29	1.0
,1,2,2-Tetrachloroethane	ND		0.20	1.0
,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
,1,2-Trichloroethane	ND		0.20	1.0
,1-Dichloroethane	ND		0.12	1.0
,1-Dichloroethene	ND		0.30	1.0
2,4-Trichlorobenzene	ND		0.27	1.0
,2-Dibromo-3-Chloropropane	ND		0.14	1.0
2-Dichlorobenzene	1.1		0.15	1.0
,2-Dichloroethane	ND		0.21	1.0
,2-Dichloropropane	ND		0.095	1.0
3-Dichlorobenzene	ND		0.11	1.0
4-Dichlorobenzene	0.23	J	0.21	1.0
-Butanone (MEK)	ND		0.55	5.0
-Hexanone	ND		0.16	5.0
-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
cetone	6.3 UB		2.5	5.0
enzene	ND		0.11	1.0
romoform	ND		0.19	1.0
romomethane	ND		0.31	1.0
arbon disulfide	ND		0.21	1.0
arbon tetrachloride	ND		0.14	1.0
hlorobenzene	0.43	J	0.14	1.0
hlorodibromomethane	ND		0.14	1.0
hloroethane	ND		0.21	1.0
hloroform	ND		0.17	1.0
hloromethane	ND		0.28	1.0
s-1,2-Dichloroethene	ND		0.24	1.0
s-1,3-Dichloropropene	ND		0.19	1.0
yclohexane	ND		0.25	1.0
ichlorobromomethane	ND		0.13	1.0
ichlorodifluoromethane	ND		0.19	1.0
thyl ether	6.1		0.082	1.0
thylbenzene	ND		0.23	1.0
,2-Dibromoethane	ND		0.18	1.0
opropylbenzene	ND		0.16	1.0
lethyl acetate	ND		0.14	1.0
lethyl tert-butyl ether	ND		0.18	1.0
lethylcyclohexane	ND		0.26	1.0
lethylene Chloride	ND UJ		0.13	1.0
tyrene	ND		0.097	1.0
etrachloroethene	ND		0.15	1.0
oluene	ND		0.15	1.0
ans-1,2-Dichloroethene	ND		0.17	1.0
ans-1,3-Dichloropropene	ND		0.15	1.0

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Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-7

Lab Sample ID: 180-36441-7 Date Sampled: 09/04/2014 1430

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915014.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1628 Final Weight/Volume: 5 ml

Analysis Date: 09/15/2014 1628 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 1628

Toluene-d8 (Surr)

 Analyte
 Result (ug/L)
 Qualifier
 MDL
 RL

 Trichlorofluoromethane
 ND
 0.20
 1.0

 Vinyl chloride
 ND
 0.23
 1.0

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Surrogate %Rec Qualifier Acceptance Limits
1,2-Dichloroethane-d4 (Surr) 99 64 - 135
4-Bromofluorobenzene (Surr) 106 70 - 118
Dibromofluoromethane (Surr) 100 70 - 128

Client Sample ID: SG-5

 Lab Sample ID:
 180-36441-8
 Date Sampled: 09/04/2014 1515

 Client Matrix:
 Water
 Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Final Weight/Volume:

5 mL

Analysis Method: Analysis Batch: 180-118072 Instrument ID: CHHP6 8260C Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915015.D Dilution: Initial Weight/Volume: 1.0 5 mL

Analysis Date: 09/15/2014 1652 Prep Date: 09/15/2014 1652

Analyte	Result (ug/L)	Qualifier	MDL	RL	
1,1,1-Trichloroethane	ND		0.29	1.0	
1,1,2,2-Tetrachloroethane	ND		0.20	1.0	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0	
1,1,2-Trichloroethane	ND		0.20	1.0	
1,1-Dichloroethane	ND		0.12	1.0	
1,1-Dichloroethene	ND		0.30	1.0	
1,2,4-Trichlorobenzene	ND		0.27	1.0	
1,2-Dibromo-3-Chloropropane	ND		0.14	1.0	
1,2-Dichlorobenzene	1.4		0.15	1.0	
1,2-Dichloroethane	ND		0.21	1.0	
1,2-Dichloropropane	ND		0.095	1.0	
1,3-Dichlorobenzene	ND		0.11	1.0	
1,4-Dichlorobenzene	0.32	J	0.21	1.0	
2-Butanone (MEK)	ND		0.55	5.0	
2-Hexanone	ND		0.16	5.0	
4-Methyl-2-pentanone (MIBK)	ND		0.53	5.0	
Acetone	8.3 UB		2.5	5.0	
Benzene	ND		0.11	1.0	
Bromoform	ND		0.19	1.0	
Bromomethane	ND		0.31	1.0	
Carbon disulfide	ND		0.21	1.0	
Carbon tetrachloride	ND		0.14	1.0	
Chlorobenzene	0.66	J	0.14	1.0	
Chlorodibromomethane	ND		0.14	1.0	
Chloroethane	ND		0.21	1.0	
Chloroform	ND		0.17	1.0	
Chloromethane	ND		0.28	1.0	
cis-1,2-Dichloroethene	ND		0.24	1.0	
cis-1,3-Dichloropropene	ND		0.19	1.0	
Cyclohexane	ND		0.25	1.0	
Dichlorobromomethane	ND		0.13	1.0	
Dichlorodifluoromethane	ND		0.19	1.0	
Ethyl ether	2.4		0.082	1.0	
Ethylbenzene	ND		0.23	1.0	
1,2-Dibromoethane	ND		0.18	1.0	
Isopropylbenzene	ND		0.16	1.0	
Methyl acetate	ND		0.14	1.0	
Methyl tert-butyl ether	ND		0.18	1.0	
Methylcyclohexane	ND		0.26	1.0	
Methylene Chloride	ND UJ		0.13	1.0	
Styrene	ND		0.097	1.0	
Tetrachloroethene	ND		0.15	1.0	
Toluene	ND		0.15	1.0	
trans-1,2-Dichloroethene	ND		0.17	1.0	
trans-1,3-Dichloropropene	ND		0.15	1.0	
Trichloroethene	ND		0.14	1.0	

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-5

Lab Sample ID: 180-36441-8 Date Sampled: 09/04/2014 1515

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915015.D

Dilution: 1.0 Initial Weight/Volume: 5 mL Analysis Date: 09/15/2014 1652 Final Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1652 Fin Prep Date: 09/15/2014 1652

 Analyte
 Result (ug/L)
 Qualifier
 MDL
 RL

 Trichlorofluoromethane
 ND
 0.20
 1.0

 Vinyl chloride
 ND
 0.23
 1.0

Surrogate %Rec Qualifier Acceptance Limits 1,2-Dichloroethane-d4 (Surr) 101 64 - 135 4-Bromofluorobenzene (Surr) 106 70 - 118 Dibromofluoromethane (Surr) 102 70 - 128 Toluene-d8 (Surr) 109 71 - 118

Client Sample ID: SG-6

 Lab Sample ID:
 180-36441-9
 Date Sampled: 09/04/2014 1600

 Client Matrix:
 Water
 Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-117991 Instrument ID: CHHP5 Prep Method: 5030C Prep Batch: N/A Lab File ID: 50914021.D Dilution: Initial Weight/Volume: 5 mL 1.0

Analysis Date: 09/14/2014 2010 Initial Weight/Volume: 5 mL Final Weight/Volume: 5 mL

Prep Date: 09/14/2014 2010

nalyte	Result (ug/L)	Qualifier	MDL	RL
,1,1-Trichloroethane	ND		0.29	1.0
1,2,2-Tetrachloroethane	ND		0.20	1.0
,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
,1,2-Trichloroethane	ND		0.20	1.0
,1-Dichloroethane	ND		0.12	1.0
,1-Dichloroethene	ND		0.30	1.0
,2,4-Trichlorobenzene	ND		0.27	1.0
,2-Dibromo-3-Chloropropane	ND		0.14	1.0
2-Dichlorobenzene	ND		0.15	1.0
,2-Dichloroethane	ND		0.21	1.0
,2-Dichloropropane	ND		0.095	1.0
3-Dichlorobenzene	ND		0.11	1.0
4-Dichlorobenzene	ND		0.21	1.0
-Butanone (MEK)	0.84	J	0.55	5.0
-Hexanone	ND		0.16	5.0
-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
cetone	12 UB		2.5	5.0
enzene	0.28	J	0.11	1.0
romoform	ND	-	0.19	1.0
romomethane	ND		0.31	1.0
arbon disulfide	ND		0.21	1.0
arbon tetrachloride	ND		0.14	1.0
hlorobenzene	ND		0.14	1.0
hlorodibromomethane	ND		0.14	1.0
hloroethane	ND		0.21	1.0
hloroform	ND		0.17	1.0
hloromethane	ND		0.28	1.0
s-1,2-Dichloroethene	ND		0.24	1.0
s-1,3-Dichloropropene	ND		0.19	1.0
yclohexane	ND		0.25	1.0
ichlorobromomethane	ND		0.13	1.0
ichlorodifluoromethane	ND		0.19	1.0
thyl ether	0.11	J	0.082	1.0
thylbenzene	ND		0.23	1.0
,2-Dibromoethane	ND		0.18	1.0
opropylbenzene	ND		0.16	1.0
lethyl acetate	ND		0.14	1.0
lethyl tert-butyl ether	ND		0.18	1.0
lethylcyclohexane	ND		0.26	1.0
lethylene Chloride	ND		0.13	1.0
tyrene	ND		0.097	1.0
etrachloroethene	ND		0.15	1.0
oluene	ND		0.15	1.0
ans-1,2-Dichloroethene	ND		0.17	1.0
ans-1,3-Dichloropropene	ND		0.15	1.0
ans- i .3-Dichioropropene				

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-6

Lab Sample ID: 180-36441-9 Date Sampled: 09/04/2014 1600

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-117991 Instrument ID: CHHP5
Prep Method: 5030C Prep Batch: N/A Lab File ID: 50914021.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/14/2014 2010 Final Weight/Volume: 5 mL

Prep Date: 09/14/2014 2010

 Analyte
 Result (ug/L)
 Qualifier
 MDL
 RL

 Trichlorofluoromethane
 ND
 0.20
 1.0

 Vinyl chloride
 ND
 0.23
 1.0

Qualifier Surrogate %Rec Acceptance Limits 1,2-Dichloroethane-d4 (Surr) 124 64 - 135 4-Bromofluorobenzene (Surr) 91 70 - 118 Dibromofluoromethane (Surr) 128 70 - 128 Toluene-d8 (Surr) 104 71 - 118

Client Sample ID: SW-2 LANGAN

Lab Sample ID: 180-36441-10 Date Sampled: 09/04/2014 1615

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6

Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915016.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1715 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 1715

nalyte	Result (ug/L)	Qualifier	MDL	RL
,1,1-Trichloroethane	ND		0.29	1.0
,1,2,2-Tetrachloroethane	ND		0.20	1.0
,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
,1,2-Trichloroethane	ND		0.20	1.0
,1-Dichloroethane	ND		0.12	1.0
,1-Dichloroethene	ND		0.30	1.0
,2,4-Trichlorobenzene	ND		0.27	1.0
,2-Dibromo-3-Chloropropane	ND		0.14	1.0
,2-Dichlorobenzene	ND		0.15	1.0
,2-Dichloroethane	ND		0.21	1.0
,2-Dichloropropane	ND		0.095	1.0
,3-Dichlorobenzene	ND		0.11	1.0
,4-Dichlorobenzene	ND		0.21	1.0
-Butanone (MEK)	ND		0.55	5.0
-Hexanone	ND		0.16	5.0
-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
cetone	9.7 UB		2.5	5.0
enzene	ND		0.11	1.0
romoform	ND		0.19	1.0
romomethane	ND		0.31	1.0
Carbon disulfide	ND		0.21	1.0
arbon tetrachloride	ND		0.14	1.0
hlorobenzene	ND		0.14	1.0
hlorodibromomethane	ND		0.14	1.0
hloroethane	ND		0.21	1.0
hloroform	ND		0.17	1.0
chloromethane	ND		0.28	1.0
is-1,2-Dichloroethene	ND		0.24	1.0
is-1,3-Dichloropropene	ND		0.19	1.0
cyclohexane	ND		0.25	1.0
pichlorobromomethane	ND		0.13	1.0
pichlorodifluoromethane	ND		0.19	1.0
thyl ether	ND		0.082	1.0
thylbenzene	ND		0.23	1.0
,2-Dibromoethane	ND		0.18	1.0
sopropylbenzene	ND		0.16	1.0
Methyl acetate	ND		0.14	1.0
lethyl tert-butyl ether	ND		0.18	1.0
lethylcyclohexane	ND		0.26	1.0
lethylene Chloride	ND UJ		0.13	1.0
tyrene	ND		0.097	1.0
etrachloroethene	ND		0.15	1.0
oluene	ND		0.15	1.0
rans-1,2-Dichloroethene	ND		0.17	1.0
rans-1,3-Dichloropropene	ND		0.15	1.0
richloroethene	ND		0.14	1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-2 LANGAN

Lab Sample ID: 180-36441-10 Date Sampled: 09/04/2014 1615

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915016.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1715 Final Weight/Volume: 5 mL Prep Date: 09/15/2014 1715

 Analyte
 Result (ug/L)
 Qualifier
 MDL
 RL

 Trichlorofluoromethane
 ND
 0.20
 1.0

 Vinyl chloride
 ND
 0.23
 1.0

Surrogate %Rec Qualifier Acceptance Limits 1,2-Dichloroethane-d4 (Surr) 100 64 - 135 4-Bromofluorobenzene (Surr) 105 70 - 118 Dibromofluoromethane (Surr) 102 70 - 128 Toluene-d8 (Surr) 107 71 - 118

Client Sample ID: SW-1 LANGAN

Lab Sample ID: 180-36441-11 Date Sampled: 09/04/2014 1630

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6

Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915017.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1740 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 1740

nalyte	Result (ug/L)	Qualifier	MDL	RL
,1,1-Trichloroethane	ND		0.29	1.0
,1,2,2-Tetrachloroethane	ND		0.20	1.0
,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
,1,2-Trichloroethane	ND		0.20	1.0
,1-Dichloroethane	ND		0.12	1.0
,1-Dichloroethene	ND		0.30	1.0
,2,4-Trichlorobenzene	ND		0.27	1.0
,2-Dibromo-3-Chloropropane	ND		0.14	1.0
,2-Dichlorobenzene	ND		0.15	1.0
,2-Dichloroethane	ND		0.21	1.0
,2-Dichloropropane	ND		0.095	1.0
,3-Dichlorobenzene	ND		0.11	1.0
,4-Dichlorobenzene	ND		0.21	1.0
-Butanone (MEK)	ND		0.55	5.0
-Hexanone	ND		0.16	5.0
-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
cetone	5.9 UB		2.5	5.0
enzene	ND		0.11	1.0
romoform	ND		0.19	1.0
romomethane	ND		0.31	1.0
arbon disulfide	ND		0.21	1.0
arbon tetrachloride	ND		0.14	1.0
hlorobenzene	ND		0.14	1.0
hlorodibromomethane	ND		0.14	1.0
hloroethane	ND		0.21	1.0
hloroform	ND		0.17	1.0
hloromethane	ND		0.28	1.0
is-1,2-Dichloroethene	ND		0.24	1.0
is-1,3-Dichloropropene	ND		0.19	1.0
yclohexane	ND		0.25	1.0
ichlorobromomethane	ND		0.13	1.0
ichlorodifluoromethane	ND		0.19	1.0
thyl ether	ND		0.082	1.0
thylbenzene	ND		0.23	1.0
,2-Dibromoethane	ND		0.18	1.0
sopropylbenzene	ND		0.16	1.0
lethyl acetate	ND		0.14	1.0
lethyl tert-butyl ether	ND		0.18	1.0
lethylcyclohexane	ND		0.26	1.0
lethylene Chloride	ND UJ		0.13	1.0
tyrene	ND ND		0.097	1.0
etrachloroethene	ND		0.15	1.0
oluene	ND		0.15	1.0
ans-1,2-Dichloroethene	ND		0.17	1.0
ans-1,3-Dichloropropene	ND		0.15	1.0
richloroethene	ND		0.14	1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-1 LANGAN

Lab Sample ID: 180-36441-11 Date Sampled: 09/04/2014 1630

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915017.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1740 Final Weight/Volume: 5 mL Prep Date: 09/15/2014 1740

Analyte Result (ug/L) Qualifier MDL RL

Trichlorofluoromethane ND 0.20 1.0 Vinyl chloride ND 0.23 1.0

Qualifier Surrogate %Rec Acceptance Limits 1,2-Dichloroethane-d4 (Surr) 98 64 - 135 4-Bromofluorobenzene (Surr) 105 70 - 118 Dibromofluoromethane (Surr) 70 - 128 101 Toluene-d8 (Surr) 108 71 - 118

Client Sample ID: SG-4

 Lab Sample ID:
 180-36441-13
 Date Sampled: 09/05/2014 0955

 Client Matrix:
 Water
 Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915006.D
Dilution: 1.0 Initial Weight/Volume: 5 mL

Dilution: 1.0 Initial Weight/Volume: 5 mL Analysis Date: 09/15/2014 1314 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 1314

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	ND		0.29	1.0
1,1,2,2-Tetrachloroethane	ND		0.20	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
1,1,2-Trichloroethane	ND		0.20	1.0
1,1-Dichloroethane	ND		0.12	1.0
1,1-Dichloroethene	ND		0.30	1.0
1,2,4-Trichlorobenzene	ND		0.27	1.0
1,2-Dibromo-3-Chloropropane	ND		0.14	1.0
1,2-Dichlorobenzene	1.6		0.15	1.0
1,2-Dichloroethane	ND		0.21	1.0
1,2-Dichloropropane	ND		0.095	1.0
1,3-Dichlorobenzene	ND		0.11	1.0
1,4-Dichlorobenzene	0.36	J	0.21	1.0
2-Butanone (MEK)	ND		0.55	5.0
2-Hexanone	ND		0.16	5.0
4-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
Acetone	5.4 UB		2.5	5.0
Benzene	0.12	J	0.11	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.31	1.0
Carbon disulfide	ND		0.21	1.0
Carbon tetrachloride	ND		0.14	1.0
Chlorobenzene	0.88	J	0.14	1.0
Chlorodibromomethane	ND		0.14	1.0
Chloroethane	ND		0.21	1.0
Chloroform	ND		0.17	1.0
Chloromethane	ND		0.28	1.0
cis-1,2-Dichloroethene	ND		0.24	1.0
cis-1,3-Dichloropropene	ND		0.19	1.0
Cyclohexane	ND		0.25	1.0
Dichlorobromomethane	ND		0.13	1.0
Dichlorodifluoromethane	ND		0.19	1.0
Ethyl ether	1.5		0.082	1.0
Ethylbenzene	ND		0.23	1.0
1,2-Dibromoethane	ND		0.18	1.0
sopropylbenzene	ND		0.16	1.0
Methyl acetate	ND		0.14	1.0
Methyl tert-butyl ether	ND		0.18	1.0
Methylcyclohexane	ND		0.26	1.0
Methylene Chloride	ND UJ		0.13	1.0
Styrene	ND		0.097	1.0
Tetrachloroethene	ND		0.15	1.0
Toluene	ND		0.15	1.0
trans-1,2-Dichloroethene	ND		0.17	1.0
			0.15	1.0
rans-1,3-Dichloropropene	ND		0.15	1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-4

Lab Sample ID: 180-36441-13 Date Sampled: 09/05/2014 0955

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915006.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1314 Final Weight/Volume: 5 mL Prep Date: 09/15/2014 1314

Analyte Result (ug/L) Qualifier MDL RL

TrichlorofluoromethaneND0.201.0Vinyl chlorideND0.231.0

Qualifier Acceptance Limits Surrogate %Rec 1,2-Dichloroethane-d4 (Surr) 97 64 - 135 4-Bromofluorobenzene (Surr) 102 70 - 118 Dibromofluoromethane (Surr) 70 - 128 102 Toluene-d8 (Surr) 106 71 - 118

Client Sample ID: SG-3

Lab Sample ID: 180-36441-14 Date Sampled: 09/05/2014 1030

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118218 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915007.D

Dilution: 1.0 Initial Weight/Volume: 5 mL Analysis Date: 09/16/2014 1607 Final Weight/Volume: 5 mL

Prep Date: 09/16/2014 1607

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	ND		0.29	1.0
,1,2,2-Tetrachloroethane	ND		0.20	1.0
,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
,1,2-Trichloroethane	ND		0.20	1.0
,1-Dichloroethane	ND		0.12	1.0
,1-Dichloroethene	ND		0.30	1.0
,2,4-Trichlorobenzene	ND		0.27	1.0
,2-Dibromo-3-Chloropropane	ND		0.14	1.0
,2-Dichlorobenzene	1.9		0.15	1.0
,2-Dichloroethane	ND		0.21	1.0
,2-Dichloropropane	ND		0.095	1.0
,3-Dichlorobenzene	ND		0.11	1.0
,4-Dichlorobenzene	0.36	J	0.21	1.0
-Butanone (MEK)	0.69	J	0.55	5.0
-Hexanone	ND		0.16	5.0
-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
cetone	7.2 UB		2.5	5.0
enzene	0.17	J	0.11	1.0
romoform	ND		0.19	1.0
romomethane	ND		0.31	1.0
arbon disulfide	ND		0.21	1.0
arbon tetrachloride	ND		0.14	1.0
Chlorobenzene	1.1		0.14	1.0
Chlorodibromomethane	ND		0.14	1.0
hloroethane	ND		0.21	1.0
Chloroform	ND		0.17	1.0
Chloromethane	ND		0.28	1.0
is-1,2-Dichloroethene	ND		0.24	1.0
is-1,3-Dichloropropene	ND		0.19	1.0
Cyclohexane	ND		0.25	1.0
vichlorobromomethane	ND		0.13	1.0
pichlorodifluoromethane	ND		0.19	1.0
thyl ether	1.0		0.082	1.0
thylbenzene	ND		0.23	1.0
,2-Dibromoethane	ND		0.18	1.0
sopropylbenzene	ND		0.16	1.0
lethyl acetate	ND		0.14	1.0
lethyl tert-butyl ether	ND		0.18	1.0
lethylcyclohexane	ND		0.26	1.0
lethylene Chloride			0.20	1.0
tyrene	ND <mark>UJ</mark> ND		0.097	1.0
etrachloroethene	ND ND		0.097	1.0
oluene	ND ND		0.15	1.0
ans-1,2-Dichloroethene	ND ND		0.15	1.0
	ND ND		0.17	
rans-1,3-Dichloropropene				1.0
ichloroethene	ND		0.14	1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-3

Lab Sample ID: 180-36441-14 Date Sampled: 09/05/2014 1030

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118218 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915007.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/16/2014 1607 Final Weight/Volume: 5 mL

Prep Date: 09/16/2014 1607

 Analyte
 Result (ug/L)
 Qualifier
 MDL
 RL

 Trichlorofluoromethane
 ND
 0.20
 1.0

 Vinyl chloride
 ND
 0.23
 1.0

%Rec Qualifier Acceptance Limits Surrogate 1,2-Dichloroethane-d4 (Surr) 102 64 - 135 4-Bromofluorobenzene (Surr) 103 70 - 118 Dibromofluoromethane (Surr) 105 70 - 128 Toluene-d8 (Surr) 106 71 - 118

Client Sample ID: SG-8

Lab Sample ID: 180-36441-15 Date Sampled: 09/05/2014 1100

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118218 Instrument ID: CHHP6

Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915014.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/16/2014 1859 Final Weight/Volume: 5 mL

Prep Date: 09/16/2014 1859

nalyte	Result (ug/L)	Qualifier	MDL	RL
,1,1-Trichloroethane	ND		0.29	1.0
,1,2,2-Tetrachloroethane	ND		0.20	1.0
,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
,1,2-Trichloroethane	ND		0.20	1.0
,1-Dichloroethane	ND		0.12	1.0
,1-Dichloroethene	ND		0.30	1.0
,2,4-Trichlorobenzene	ND		0.27	1.0
,2-Dibromo-3-Chloropropane	ND		0.14	1.0
,2-Dichlorobenzene	2.6		0.15	1.0
,2-Dichloroethane	ND		0.21	1.0
,2-Dichloropropane	ND		0.095	1.0
,3-Dichlorobenzene	ND		0.11	1.0
,4-Dichlorobenzene	0.64	J	0.21	1.0
-Butanone (MEK)	ND		0.55	5.0
-Hexanone	ND		0.16	5.0
-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
cetone	19 UB		2.5	5.0
Senzene	0.15	J	0.11	1.0
Bromoform	ND		0.19	1.0
romomethane	ND		0.31	1.0
Carbon disulfide	ND		0.21	1.0
Carbon tetrachloride	ND		0.14	1.0
Chlorobenzene	2.1		0.14	1.0
Chlorodibromomethane	ND		0.14	1.0
Chloroethane	ND		0.21	1.0
Chloroform	ND		0.17	1.0
Chloromethane	ND		0.28	1.0
is-1,2-Dichloroethene	ND		0.24	1.0
is-1,3-Dichloropropene	ND		0.19	1.0
Cyclohexane	ND		0.25	1.0
Dichlorobromomethane	ND		0.13	1.0
Dichlorodifluoromethane	ND		0.19	1.0
thyl ether	1.1		0.082	1.0
thylbenzene	ND		0.23	1.0
,2-Dibromoethane	ND		0.18	1.0
sopropylbenzene	ND		0.16	1.0
Methyl acetate	ND		0.14	1.0
Methyl tert-butyl ether	ND		0.18	1.0
Methylcyclohexane	ND		0.26	1.0
Methylene Chloride	ND UJ		0.13	1.0
Styrene	ND		0.097	1.0
etrachloroethene	ND		0.15	1.0
oluene	ND		0.15	1.0
rans-1,2-Dichloroethene	ND		0.17	1.0
rans-1,3-Dichloropropene	ND		0.15	1.0
richloroethene	ND		0.14	1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-8

Lab Sample ID: 180-36441-15 Date Sampled: 09/05/2014 1100

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118218 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915014.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/16/2014 1859 Final Weight/Volume: 5 mL

Prep Date: 09/16/2014 1859

 Analyte
 Result (ug/L)
 Qualifier
 MDL
 RL

 Trichlorofluoromethane
 ND
 0.20
 1.0

 Vinyl chloride
 ND
 0.23
 1.0

%Rec Qualifier Acceptance Limits Surrogate 1,2-Dichloroethane-d4 (Surr) 103 64 - 135 4-Bromofluorobenzene (Surr) 105 70 - 118 Dibromofluoromethane (Surr) 103 70 - 128 Toluene-d8 (Surr) 107 71 - 118

5 mL

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-1

 Lab Sample ID:
 180-36441-16
 Date Sampled: 09/05/2014 1105

 Client Matrix:
 Water
 Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6 Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915019.D Dilution: Initial Weight/Volume: 1.0 5 mL

Analysis Date: 09/15/2014 1828 Final Weight/Volume:

Prep Date: 09/15/2014 1828

1,2,2-Teichloro-1,2,2-trifluoroethane	Analyte	Result (ug/L)	Qualifier	MDL	RL
1.2-Trichloro-1,2,2-Irifluoroethane	,1,1-Trichloroethane	ND			1.0
12Trichloroethane ND 0.20 1.0 1-Dichloroethane ND 0.12 1.0 1-Dichloroethane ND 0.30 1.0 2.4-Trichlorobenzene ND 0.27 1.0 2.4-Trichlorobenzene ND 0.14 1.0 2-Dichloroperpane ND 0.15 1.0 2-Dichloroperpane ND 0.21 1.0 2-Dichloroperpane ND 0.95 1.0 3-Dichlorobenzene ND 0.011 1.0 4-Dichlorobenzene 0.30 J 0.21 1.0 Butanone (MEK) ND 0.55 5.0 Hekxanone ND 0.16 5.0 Methyl-2-pentanone (MIBK) ND 0.53 5.0 setone ND 0.16 5.0 setone ND 0.11 1.0 omoform ND 0.11 1.0 omoform ND 0.21 1.0 omoformethane ND	,1,2,2-Tetrachloroethane	ND		0.20	1.0
1-Dichloroethane	,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
1-Dichloroethene ND	,1,2-Trichloroethane	ND		0.20	1.0
2.4-Trichlorobenzene ND 0.27 1.0 2-Dibromo-3-Chicropropane ND 0.14 1.0 2-Dichlorobenzene 1.7 0.15 1.0 2-Dichloropropane ND 0.21 1.0 2-Dichloropropane ND 0.095 1.0 3-Dichlorobenzene ND 0.11 1.0 Butanone (MEK) ND 0.55 5.0 Hexanone ND 0.16 5.0 Methyl-2-pentanone (MIBK) ND 0.53 5.0 betone 8.8 UB 2.5 5.0 extene ND 0.11 1.0 omform ND 0.53 5.0 extene ND 0.11 1.0 omform ND 0.53 5.0 extene ND 0.11 1.0 omform ND 0.11 1.0 omform ND 0.11 1.0 omform ND 0.21 1.0	,1-Dichloroethane	ND		0.12	1.0
2-Dibromo-3-Chloropropane	,1-Dichloroethene	ND		0.30	1.0
2-Dichlorobenzene	,2,4-Trichlorobenzene	ND		0.27	1.0
2-Dichloroethane	,2-Dibromo-3-Chloropropane	ND		0.14	1.0
2-Dichloropropane ND	,2-Dichlorobenzene	1.7		0.15	1.0
3-Dichlorobenzene ND	,2-Dichloroethane	ND		0.21	1.0
ND	,2-Dichloropropane	ND		0.095	1.0
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popropylbenzene ND 0.16 1.0 ethyl acetate ND 0.14 1.0 ethyl tert-butyl ether ND 0.18 1.0 ethylcyclohexane ND 0.26 1.0 ethylene Chloride ND 0.13 1.0 yrene ND 0.097 1.0 etrachloroethene ND 0.15 1.0 oluene ND 0.15 1.0 ans-1,2-Dichloroethene ND 0.17 1.0 ans-1,3-Dichloropropene ND 0.15 1.0					
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ichloroothono ND 0.14 1.0	richloroethene	ND		0.15	1.0

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Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-1

Toluene-d8 (Surr)

Lab Sample ID: 180-36441-16 Date Sampled: 09/05/2014 1105

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915019.D

Dilution: 1.0 Initial Weight/Volume: 5 mL Analysis Date: 09/15/2014 1828 Final Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1828 Final W Prep Date: 09/15/2014 1828

 Analyte
 Result (ug/L)
 Qualifier
 MDL
 RL

 Trichlorofluoromethane
 ND
 0.20
 1.0

 Vinyl chloride
 ND
 0.23
 1.0

106

Surrogate%RecQualifierAcceptance Limits1,2-Dichloroethane-d4 (Surr)9864 - 1354-Bromofluorobenzene (Surr)10370 - 118Dibromofluoromethane (Surr)10170 - 128

Client Sample ID: SG-2

 Lab Sample ID:
 180-36441-17
 Date Sampled: 09/05/2014 1145

 Client Matrix:
 Water
 Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915020.D
Dilution: 1.0 Initial Weight/Volume: 5 mL

Dilution: 1.0 Initial Weight/Volume: 5 mL Analysis Date: 09/15/2014 1852 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 1852

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	ND ND		0.29	1.0
1,1,2,2-Tetrachloroethane	ND		0.20	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
1,1,2-Trichloroethane	ND		0.20	1.0
1,1-Dichloroethane	ND		0.12	1.0
1,1-Dichloroethene	ND		0.30	1.0
1,2,4-Trichlorobenzene	ND		0.27	1.0
1,2-Dibromo-3-Chloropropane	ND		0.14	1.0
1,2-Dichlorobenzene	1.2		0.15	1.0
1,2-Dichloroethane	ND		0.21	1.0
1,2-Dichloropropane	ND		0.095	1.0
1,3-Dichlorobenzene	ND		0.11	1.0
1,4-Dichlorobenzene	ND		0.21	1.0
2-Butanone (MEK)	ND		0.55	5.0
2-Hexanone	ND		0.16	5.0
4-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
Acetone	6.3 UB		2.5	5.0
Benzene	0.11	J	0.11	1.0
Bromoform	ND		0.19	1.0
Bromomethane	ND		0.31	1.0
Carbon disulfide	ND		0.21	1.0
Carbon tetrachloride	ND		0.14	1.0
Chlorobenzene	0.34	J	0.14	1.0
Chlorodibromomethane	ND		0.14	1.0
Chloroethane	ND		0.21	1.0
Chloroform	ND		0.17	1.0
Chloromethane	ND		0.28	1.0
cis-1,2-Dichloroethene	ND		0.24	1.0
cis-1,3-Dichloropropene	ND		0.19	1.0
Cyclohexane	ND		0.25	1.0
Dichlorobromomethane	ND		0.13	1.0
Dichlorodifluoromethane	ND		0.19	1.0
Ethyl ether	0.31	J	0.082	1.0
Ethylbenzene	ND		0.23	1.0
1,2-Dibromoethane	ND		0.18	1.0
Isopropylbenzene	ND		0.16	1.0
Methyl acetate	ND		0.14	1.0
Methyl tert-butyl ether	ND		0.18	1.0
Methylcyclohexane	ND		0.26	1.0
Methylene Chloride	ND UJ		0.13	1.0
Styrene	ND		0.097	1.0
Tetrachloroethene	ND		0.15	1.0
Toluene	ND		0.15	1.0
trans-1,2-Dichloroethene	ND		0.17	1.0
trans-1,3-Dichloropropene	ND		0.15	1.0
Trichloroethene	ND		0.14	1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-2

Lab Sample ID: 180-36441-17 Date Sampled: 09/05/2014 1145

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915020.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1852 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 1852

 Analyte
 Result (ug/L)
 Qualifier
 MDL
 RL

 Trichlorofluoromethane
 ND
 0.20
 1.0

 Vinyl chloride
 ND
 0.23
 1.0

%Rec Qualifier Acceptance Limits Surrogate 1,2-Dichloroethane-d4 (Surr) 102 64 - 135 4-Bromofluorobenzene (Surr) 108 70 - 118 Dibromofluoromethane (Surr) 100 70 - 128 Toluene-d8 (Surr) 110 71 - 118

Client Sample ID: SH-1

Lab Sample ID: 180-36441-18 Date Sampled: 09/05/2014 1215

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915021.D
Dilution: 1.0 Initial Weight/Volume: 5 mL

Dilution: 1.0 Initial Weight/Volume: 5 mL Analysis Date: 09/15/2014 1916 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 1916

Analyte	Result (ug/L)	Qualifier	MDL	RL
,1,1-Trichloroethane	ND		0.29	1.0
,1,2,2-Tetrachloroethane	ND		0.20	1.0
,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
,1,2-Trichloroethane	ND		0.20	1.0
,1-Dichloroethane	ND		0.12	1.0
,1-Dichloroethene	ND		0.30	1.0
,2,4-Trichlorobenzene	ND		0.27	1.0
,2-Dibromo-3-Chloropropane	ND		0.14	1.0
,2-Dichlorobenzene	ND		0.15	1.0
,2-Dichloroethane	ND		0.21	1.0
,2-Dichloropropane	ND		0.095	1.0
,3-Dichlorobenzene	ND		0.11	1.0
,4-Dichlorobenzene	ND		0.21	1.0
-Butanone (MEK)	ND		0.55	5.0
-Hexanone	ND		0.16	5.0
-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
cetone	5.7 UB		2.5	5.0
enzene	0.11	J	0.11	1.0
romoform	ND	· ·	0.19	1.0
romomethane	ND		0.31	1.0
arbon disulfide	ND		0.21	1.0
Carbon tetrachloride	ND		0.14	1.0
Chlorobenzene	ND		0.14	1.0
chlorodibromomethane	ND		0.14	1.0
Chloroethane	ND		0.21	1.0
Chloroform	ND		0.17	1.0
Chloromethane	ND		0.28	1.0
is-1,2-Dichloroethene	ND		0.24	1.0
is-1,3-Dichloropropene	ND		0.19	1.0
Syclohexane	ND		0.19	1.0
Dichlorobromomethane	ND		0.23	1.0
Dichlorodifluoromethane	ND		0.19	1.0
ithyl ether	0.20	1	0.082	1.0
-	ND	J	0.002	1.0
thylbenzene			0.23	
,2-Dibromoethane	ND			1.0
sopropylbenzene	ND ND		0.16	1.0
lethyl acetate	ND ND		0.14	1.0
lethyl tert-butyl ether	ND ND		0.18	1.0
lethylcyclohexane	ND ND		0.26	1.0
lethylene Chloride	ND UJ		0.13	1.0
tyrene	ND		0.097	1.0
etrachloroethene	ND		0.15	1.0
oluene	ND		0.15	1.0
rans-1,2-Dichloroethene	ND		0.17	1.0
rans-1,3-Dichloropropene	ND		0.15	1.0
richloroethene	ND		0.14	1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SH-1

Lab Sample ID: 180-36441-18 Date Sampled: 09/05/2014 1215

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915021.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1916 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 1916

 Analyte
 Result (ug/L)
 Qualifier
 MDL
 RL

 Trichlorofluoromethane
 ND
 0.20
 1.0

 Vinyl chloride
 ND
 0.23
 1.0

%Rec Qualifier Acceptance Limits Surrogate 1,2-Dichloroethane-d4 (Surr) 104 64 - 135 4-Bromofluorobenzene (Surr) 109 70 - 118 Dibromofluoromethane (Surr) 98 70 - 128 Toluene-d8 (Surr) 109 71 - 118

Client Sample ID: SG-1

 Lab Sample ID:
 180-36441-19
 Date Sampled: 09/05/2014 1225

 Client Matrix:
 Water
 Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915023.D
Dilution: 1.0 Initial Weight/Volume: 5 mL

Dilution: 1.0 Initial Weight/Volume: 5 mL Analysis Date: 09/15/2014 2003 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 2003

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	ND		0.29	1.0
,1,2,2-Tetrachloroethane	ND		0.20	1.0
,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
,1,2-Trichloroethane	ND		0.20	1.0
,1-Dichloroethane	ND		0.12	1.0
,1-Dichloroethene	ND		0.30	1.0
,2,4-Trichlorobenzene	ND		0.27	1.0
,2-Dibromo-3-Chloropropane	ND		0.14	1.0
,2-Dichlorobenzene	ND		0.15	1.0
,2-Dichloroethane	ND		0.21	1.0
,2-Dichloropropane	ND		0.095	1.0
,3-Dichlorobenzene	ND		0.11	1.0
,4-Dichlorobenzene	ND		0.21	1.0
-Butanone (MEK)	ND		0.55	5.0
-Hexanone	ND		0.16	5.0
-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
cetone	5.9 UB		2.5	5.0
enzene	0.13	J	0.11	1.0
romoform	ND		0.19	1.0
romomethane	ND		0.31	1.0
arbon disulfide	ND		0.21	1.0
arbon tetrachloride	ND		0.14	1.0
Chlorobenzene	ND		0.14	1.0
Chlorodibromomethane	ND		0.14	1.0
Chloroethane	ND		0.21	1.0
Chloroform	ND		0.17	1.0
Chloromethane	ND		0.28	1.0
is-1,2-Dichloroethene	ND		0.24	1.0
is-1,3-Dichloropropene	ND		0.19	1.0
Cyclohexane	ND		0.25	1.0
Dichlorobromomethane	ND		0.13	1.0
pichlorodifluoromethane	ND		0.19	1.0
thyl ether	ND		0.082	1.0
thylbenzene	ND		0.23	1.0
,2-Dibromoethane	ND		0.23	1.0
sopropylbenzene	ND		0.16	1.0
lethyl acetate	ND		0.14	1.0
lethyl acetate lethyl tert-butyl ether	ND		0.14	1.0
lethylcyclohexane	ND		0.16	1.0
lethylene Chloride			0.13	1.0
tyrene	ND UJ ND		0.097	1.0
etrachloroethene	ND ND		0.097	1.0
oluene	ND ND		0.15	1.0
oluerie ans-1,2-Dichloroethene	ND ND		0.15	1.0
	ND ND		0.17	
rans-1,3-Dichloropropene				1.0
ichloroethene	ND		0.14	1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-1

Lab Sample ID: 180-36441-19 Date Sampled: 09/05/2014 1225

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915023.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 2003 Final Weight/Volume: 5 mL Prep Date: 09/15/2014 2003

110p Bate. 00/10/2014 2000

 Analyte
 Result (ug/L)
 Qualifier
 MDL
 RL

 Trichlorofluoromethane
 ND
 0.20
 1.0

 Vinyl chloride
 ND
 0.23
 1.0

Surrogate %Rec Qualifier Acceptance Limits 1,2-Dichloroethane-d4 (Surr) 103 64 - 135 4-Bromofluorobenzene (Surr) 102 70 - 118 Dibromofluoromethane (Surr) 105 70 - 128 Toluene-d8 (Surr) 106 71 - 118

Client Sample ID: EB090514

Lab Sample ID: 180-36441-20 Date Sampled: 09/05/2014 1230

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6

Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915024.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 2027 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 2027

Analyte	Result (ug/L)	Qualifier	MDL	RL
,1,1-Trichloroethane	ND		0.29	1.0
,1,2,2-Tetrachloroethane	ND		0.20	1.0
,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
,1,2-Trichloroethane	ND		0.20	1.0
,1-Dichloroethane	ND		0.12	1.0
,1-Dichloroethene	ND		0.30	1.0
,2,4-Trichlorobenzene	ND		0.27	1.0
,2-Dibromo-3-Chloropropane	ND		0.14	1.0
,2-Dichlorobenzene	ND		0.15	1.0
2-Dichloroethane	ND		0.21	1.0
2-Dichloropropane	ND		0.095	1.0
3-Dichlorobenzene	ND		0.11	1.0
4-Dichlorobenzene	ND		0.21	1.0
-Butanone (MEK)	ND		0.55	5.0
-Hexanone	ND		0.16	5.0
-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
cetone	5.3		2.5	5.0
enzene	ND		0.11	1.0
romoform	ND		0.19	1.0
romomethane	ND		0.31	1.0
arbon disulfide	ND		0.21	1.0
arbon tetrachloride	ND		0.14	1.0
hlorobenzene	ND		0.14	1.0
hlorodibromomethane	ND		0.14	1.0
hloroethane	ND		0.21	1.0
hloroform	ND		0.17	1.0
hloromethane	ND		0.28	1.0
is-1,2-Dichloroethene	ND		0.24	1.0
is-1,3-Dichloropropene	ND		0.19	1.0
yclohexane	ND		0.19	1.0
vichlorobromomethane	ND		0.23	1.0
vichlorodifluoromethane	ND		0.19	1.0
thyl ether	ND		0.082	1.0
-	ND		0.002	1.0
thylbenzene			0.23	
,2-Dibromoethane	ND ND			1.0
opropylbenzene	ND ND		0.16	1.0
lethyl acetate	ND ND		0.14	1.0
lethyl tert-butyl ether	ND ND		0.18	1.0
lethylcyclohexane	ND		0.26	1.0
lethylene Chloride	ND UJ		0.13	1.0
tyrene	ND		0.097	1.0
etrachloroethene	ND		0.15	1.0
oluene	ND		0.15	1.0
ans-1,2-Dichloroethene	ND		0.17	1.0
ans-1,3-Dichloropropene	ND		0.15	1.0
richloroethene	ND		0.14	1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: EB090514

Lab Sample ID: 180-36441-20 Date Sampled: 09/05/2014 1230

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915024.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 2027 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 2027

 Analyte
 Result (ug/L)
 Qualifier
 MDL
 RL

 Trichlorofluoromethane
 ND
 0.20
 1.0

 Vinyl chloride
 ND
 0.23
 1.0

Surrogate %Rec Qualifier Acceptance Limits 1,2-Dichloroethane-d4 (Surr) 100 64 - 135 4-Bromofluorobenzene (Surr) 108 70 - 118 Dibromofluoromethane (Surr) 101 70 - 128 Toluene-d8 (Surr) 111 71 - 118

Client Sample ID: DUP090514

Lab Sample ID: 180-36441-21 Date Sampled: 09/05/2014 0000

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118218 Instrument ID: CHHP6

Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915015.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/16/2014 1923 Final Weight/Volume: 5 mL

Prep Date: 09/16/2014 1923

Analyte	Result (ug/L)	Qualifier	MDL	RL
,1,1-Trichloroethane	ND		0.29	1.0
,1,2,2-Tetrachloroethane	ND		0.20	1.0
,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
,1,2-Trichloroethane	ND		0.20	1.0
,1-Dichloroethane	ND		0.12	1.0
,1-Dichloroethene	ND		0.30	1.0
,2,4-Trichlorobenzene	ND		0.27	1.0
,2-Dibromo-3-Chloropropane	ND		0.14	1.0
,2-Dichlorobenzene	1.8		0.15	1.0
,2-Dichloroethane	ND		0.21	1.0
,2-Dichloropropane	ND		0.095	1.0
,3-Dichlorobenzene	ND		0.11	1.0
,4-Dichlorobenzene	0.38	J	0.21	1.0
2-Butanone (MEK)	ND	-	0.55	5.0
!-Hexanone	ND		0.16	5.0
-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
cetone	5.5 UB		2.5	5.0
Senzene	0.15	J	0.11	1.0
Bromoform	ND	· ·	0.19	1.0
Bromomethane	ND		0.31	1.0
Carbon disulfide	ND		0.21	1.0
Carbon tetrachloride	ND		0.14	1.0
Chlorobenzene	1.1		0.14	1.0
Chlorodibromomethane	ND		0.14	1.0
Chloroethane	ND		0.21	1.0
Chloroform	ND		0.17	1.0
Chloromethane	ND		0.28	1.0
is-1,2-Dichloroethene	ND		0.24	1.0
	ND		0.19	1.0
is-1,3-Dichloropropene	ND ND		0.19	1.0
Cyclohexane Dichlorobromomethane	ND ND		0.23	1.0
Dichlorodifluoromethane	ND ND		0.13	
		1		1.0
thyl ether	0.90	J	0.082	1.0
thylbenzene	ND ND		0.23	1.0
,2-Dibromoethane	ND		0.18	1.0
sopropylbenzene	ND ND		0.16	1.0
Methyl acetate	ND		0.14	1.0
Methyl tert-butyl ether	ND		0.18	1.0
Methylcyclohexane	ND		0.26	1.0
Methylene Chloride	ND UJ		0.13	1.0
styrene	ND		0.097	1.0
etrachloroethene	ND		0.15	1.0
oluene	ND		0.15	1.0
rans-1,2-Dichloroethene	ND		0.17	1.0
rans-1,3-Dichloropropene	ND		0.15	1.0
Frichloroethene	ND		0.14	1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: DUP090514

Lab Sample ID: 180-36441-21 Date Sampled: 09/05/2014 0000

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118218 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915015.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/16/2014 1923 Final Weight/Volume: 5 mL

Analysis Date: 09/16/2014 1923 Final Weight/Volume: Prep Date: 09/16/2014 1923

Analyte Result (ug/L) Qualifier MDL RL

TrichlorofluoromethaneND0.201.0Vinyl chlorideND0.231.0

%Rec Surrogate Qualifier Acceptance Limits 1,2-Dichloroethane-d4 (Surr) 103 64 - 135 4-Bromofluorobenzene (Surr) 108 70 - 118 Dibromofluoromethane (Surr) 102 70 - 128 Toluene-d8 (Surr) 108 71 - 118

Client Sample ID: TRIP BLANKS

Lab Sample ID: 180-36441-22 Date Sampled: 09/05/2014 0000

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915007.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1337 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 1337

nalyte	Result (ug/L)	Qualifier	MDL	RL
,1,1-Trichloroethane	ND		0.29	1.0
,1,2,2-Tetrachloroethane	ND		0.20	1.0
,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	1.0
,1,2-Trichloroethane	ND		0.20	1.0
,1-Dichloroethane	ND		0.12	1.0
,1-Dichloroethene	ND		0.30	1.0
,2,4-Trichlorobenzene	ND		0.27	1.0
,2-Dibromo-3-Chloropropane	ND		0.14	1.0
,2-Dichlorobenzene	ND		0.15	1.0
,2-Dichloroethane	ND		0.21	1.0
,2-Dichloropropane	ND		0.095	1.0
,3-Dichlorobenzene	ND		0.11	1.0
,4-Dichlorobenzene	ND		0.21	1.0
-Butanone (MEK)	ND		0.55	5.0
-Hexanone	ND		0.16	5.0
-Methyl-2-pentanone (MIBK)	ND		0.53	5.0
cetone	12		2.5	5.0
enzene	ND		0.11	1.0
romoform	ND		0.19	1.0
romomethane	ND		0.31	1.0
arbon disulfide	ND		0.21	1.0
arbon tetrachloride	ND		0.14	1.0
hlorobenzene	ND		0.14	1.0
hlorodibromomethane	ND		0.14	1.0
hloroethane	ND		0.21	1.0
hloroform	ND		0.17	1.0
hloromethane	ND		0.28	1.0
is-1,2-Dichloroethene	ND		0.24	1.0
is-1,3-Dichloropropene	ND		0.19	1.0
cyclohexane	ND		0.25	1.0
ichlorobromomethane	ND		0.13	1.0
ichlorodifluoromethane	ND		0.19	1.0
thyl ether	ND		0.082	1.0
thylbenzene	ND		0.23	1.0
,2-Dibromoethane	ND		0.18	1.0
sopropylbenzene	ND		0.16	1.0
lethyl acetate	ND		0.14	1.0
lethyl tert-butyl ether	ND		0.18	1.0
lethylcyclohexane	ND		0.26	1.0
lethylene Chloride	0.68	J	0.13	1.0
tyrene	ND	J	0.097	1.0
etrachloroethene	ND		0.15	1.0
oluene	ND		0.15	1.0
ans-1,2-Dichloroethene	ND		0.15	1.0
ans-1,3-Dichloropropene	ND		0.17	1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: TRIP BLANKS

Lab Sample ID: 180-36441-22 Date Sampled: 09/05/2014 0000

Client Matrix: Water Date Received: 09/06/2014 0915

8260C Volatile Organic Compounds (GC/MS)

Analysis Method: 8260C Analysis Batch: 180-118072 Instrument ID: CHHP6
Prep Method: 5030C Prep Batch: N/A Lab File ID: 60915007.D

Dilution: 1.0 Initial Weight/Volume: 5 mL

Analysis Date: 09/15/2014 1337 Final Weight/Volume: 5 mL

Prep Date: 09/15/2014 1337

 Analyte
 Result (ug/L)
 Qualifier
 MDL
 RL

 Trichlorofluoromethane
 ND
 0.20
 1.0

 Vinyl chloride
 ND
 0.23
 1.0

%Rec Surrogate Qualifier Acceptance Limits 1,2-Dichloroethane-d4 (Surr) 100 64 - 135 4-Bromofluorobenzene (Surr) 100 70 - 118 Dibromofluoromethane (Surr) 103 70 - 128 Toluene-d8 (Surr) 104 71 - 118

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-5 LANGAN

Lab Sample ID: 180-36441-1 Date Sampled: 09/04/2014 1125

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201420.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 1726 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

 Analyte
 Result (mg/L)
 Qualifier
 MDL
 RL

 Sulfate
 94
 1.1
 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SED-103

Lab Sample ID: 180-36441-2 Date Sampled: 09/04/2014 1220

Client Matrix: Solid % Moisture: 23.4 Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography-Soluble

Analysis Method: 300.0 Analysis Batch: 180-117995 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-14-201419.0000.d

Dilution: 1.0 Leach Batch: 180-118001 Initial Weight/Volume: 1 mL

Analysis Date: 09/14/2014 1647 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

Leach Date: 09/14/2014 1211

Analyte DryWt Corrected: Y Result (mg/Kg) Qualifier MDL RL
Sulfate 68 2.8 13

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-4 LANGAN

Lab Sample ID: 180-36441-3 Date Sampled: 09/04/2014 1235

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201421.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 1741 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

 Analyte
 Result (mg/L)
 Qualifier
 MDL
 RL

 Sulfate
 99
 1.1
 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SED-102

Lab Sample ID: 180-36441-4 Date Sampled: 09/04/2014 1310

Client Matrix: Solid % Moisture: 32.0 Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography-Soluble

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201412.0000.d

Dilution: 5.0 Leach Batch: 180-118001 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 1521 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

Leach Date: 09/14/2014 1211

Analyte DryWt Corrected: Y Result (mg/Kg) Qualifier MDL RL
Sulfate 2500 16 74

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-3 LANGAN

Lab Sample ID: 180-36441-5 Date Sampled: 09/04/2014 1320

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201422.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 1757 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

Analyte Result (mg/L) Qualifier MDL RL

Sulfate 100 1.1 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SED-101

Lab Sample ID: 180-36441-6 Date Sampled: 09/04/2014 1400

Client Matrix: Solid % Moisture: 8.8 Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography-Soluble

Analysis Method: 300.0 Analysis Batch: 180-117995 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-14-201423.0000.d

Dilution: 1.0 Leach Batch: 180-118001 Initial Weight/Volume: 1 mL

Analysis Date: 09/14/2014 1749 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

Leach Date: 09/14/2014 1211

Analyte DryWt Corrected: Y Result (mg/Kg) Qualifier MDL RL
Sulfate 59 J 2.3 11

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-7

Lab Sample ID: 180-36441-7 Date Sampled: 09/04/2014 1430

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201423.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 1812 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

 Analyte
 Result (mg/L)
 Qualifier
 MDL
 RL

 Sulfate
 99
 1.1
 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-5

Lab Sample ID: 180-36441-8 Date Sampled: 09/04/2014 1515

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201426.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 1859 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

 Analyte
 Result (mg/L)
 Qualifier
 MDL
 RL

 Sulfate
 98
 1.1
 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-6

Lab Sample ID: 180-36441-9 Date Sampled: 09/04/2014 1600

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201429.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 1946 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

 Analyte
 Result (mg/L)
 Qualifier
 MDL
 RL

 Sulfate
 89
 1.1
 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-2 LANGAN

Lab Sample ID: 180-36441-10 Date Sampled: 09/04/2014 1615

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201430.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 2001 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

Analyte Result (mg/L) Qualifier MDL RL
Sulfate 93 1.1 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-1 LANGAN

Lab Sample ID: 180-36441-11 Date Sampled: 09/04/2014 1630

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201431.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 2017 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

 Analyte
 Result (mg/L)
 Qualifier
 MDL
 RL

 Sulfate
 89
 1.1
 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: DUP090414

Lab Sample ID: 180-36441-12 Date Sampled: 09/04/2014 0000

Client Matrix: Solid % Moisture: 11.7 Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography-Soluble

Analysis Method: 300.0 Analysis Batch: 180-117995 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-14-201424.0000.d

Dilution: 1.0 Leach Batch: 180-118001 Initial Weight/Volume: 1 mL

Analysis Date: 09/14/2014 1805 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

Leach Date: 09/14/2014 1211

Analyte DryWt Corrected: Y Result (mg/Kg) Qualifier MDL RL
Sulfate 120 J 2.4 11

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-4

Lab Sample ID: 180-36441-13 Date Sampled: 09/05/2014 0955

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201432.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 2032 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

 Analyte
 Result (mg/L)
 Qualifier
 MDL
 RL

 Sulfate
 92
 1.1
 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-3

Lab Sample ID: 180-36441-14 Date Sampled: 09/05/2014 1030

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201435.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 2119 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

Analyte Result (mg/L) Qualifier MDL RL
Sulfate 95 1.1 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-8

Lab Sample ID: 180-36441-15 Date Sampled: 09/05/2014 1100

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201436.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 2135 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

 Analyte
 Result (mg/L)
 Qualifier
 MDL
 RL

 Sulfate
 98
 1.1
 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-1

Lab Sample ID: 180-36441-16 Date Sampled: 09/05/2014 1105

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201437.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 2150 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

Analyte Result (mg/L) Qualifier MDL RL
Sulfate 92 1.1 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-2

Lab Sample ID: 180-36441-17 Date Sampled: 09/05/2014 1145

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201438.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 2206 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

 Analyte
 Result (mg/L)
 Qualifier
 MDL
 RL

 Sulfate
 95
 1.1
 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SH-1

Lab Sample ID: 180-36441-18 Date Sampled: 09/05/2014 1215

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201441.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 2252 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

 Analyte
 Result (mg/L)
 Qualifier
 MDL
 RL

 Sulfate
 90
 1.1
 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-1

Lab Sample ID: 180-36441-19 Date Sampled: 09/05/2014 1225

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201442.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 2308 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

 Analyte
 Result (mg/L)
 Qualifier
 MDL
 RL

 Sulfate
 93
 1.1
 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: EB090514

Lab Sample ID: 180-36441-20 Date Sampled: 09/05/2014 1230

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201443.0000.d

Dilution: 1.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 2324 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

 Analyte
 Result (mg/L)
 Qualifier
 MDL
 RL

 Sulfate
 ND
 0.21
 1.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: DUP090514

Lab Sample ID: 180-36441-21 Date Sampled: 09/05/2014 0000

Client Matrix: Water Date Received: 09/06/2014 0915

300.0 Anions, Ion Chromatography

Analysis Method: 300.0 Analysis Batch: 180-118382 Instrument ID: CHIC25

N/A Prep Batch: N/A Lab File ID: 09-17-201444.0000.d

Dilution: 5.0 Initial Weight/Volume: 1 mL

Analysis Date: 09/17/2014 2339 Final Weight/Volume:

Prep Date: N/A Injection Volume: 25 uL

 Analyte
 Result (mg/L)
 Qualifier
 MDL
 RL

 Sulfate
 93
 1.1
 5.0

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-4

Lab Sample ID: 180-36441-13 Date Sampled: 09/05/2014 0955

Client Matrix: Water Date Received: 09/06/2014 0915

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111485 Instrument ID: CHLCJ
Prep Method: 8315_W_Prep Prep Batch: 640-111453 Lab File ID: 1109J19.d

Dilution: 1.0 Prep Batch. 040-111455 Lab File ID. 1109519.0

 Analysis Date:
 09/09/2014 1355
 Final Weight/Volume:
 4.0 mL

 Prep Date:
 09/07/2014 1210
 Injection Volume:
 10 uL

Analyte Result (ug/L) Qualifier MDL RL

Formaldehyde 9.7 J 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-3

Lab Sample ID: 180-36441-14 Date Sampled: 09/05/2014 1030

Client Matrix: Water Date Received: 09/06/2014 0915

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111485 Instrument ID: CHLCJ
Prep Method: 8315 W Prep Prep Batch: 640-111453 Lab File ID: 1109J22

Prep Method: 8315_W_Prep Prep Batch: 640-111453 Lab File ID: 1109J22.d Dilution: 1.0 Initial Weight/Volume: 100 mL

 Analysis Date:
 09/09/2014 1431
 Final Weight/Volume:
 4.0 mL

 Prep Date:
 09/07/2014 1210
 Injection Volume:
 10 uL

Analyte Result (ug/L) Qualifier MDL RL

Formaldehyde ND 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-8

Lab Sample ID: 180-36441-15 Date Sampled: 09/05/2014 1100

Client Matrix: Date Received: 09/06/2014 0915 Water

8315A Carbonyl Compounds (HPLC)

Analysis Method: Analysis Batch: 640-111485 Instrument ID: CHLCJ 8315A Prep Method: 640-111453 Lab File ID:

8315_W_Prep Prep Batch: 1109J23.d Dilution: Initial Weight/Volume: 100 mL

Analysis Date: 09/09/2014 1442 Final Weight/Volume: 4.0 mL Prep Date: 09/07/2014 1210 Injection Volume: 10 uL

Analyte Result (ug/L) Qualifier MDL RL Formaldehyde 8.1 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-1

Lab Sample ID: 180-36441-16 Date Sampled: 09/05/2014 1105

Client Matrix: Water Date Received: 09/06/2014 0915

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111485 Instrument ID: CHLCJ
Prep Method: 8315_W_Prep Prep Batch: 640-111453 Lab File ID: 1109J24.d

Dilution: 1.0 Initial Weight/Volume: 100 mL
Analysis Date: 09/09/2014 1454 Final Weight/Volume: 4.0 mL

Prep Date: 09/07/2014 1210 Injection Volume: 4.0 III.

Analyte Result (ug/L) Qualifier MDL RL Formaldehyde 14 J 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-2

Lab Sample ID: 180-36441-17 Date Sampled: 09/05/2014 1145

Client Matrix: Water Date Received: 09/06/2014 0915

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111485 Instrument ID: CHLCJ

Prep Method: 8315_W_Prep Prep Batch: 640-111453 Lab File ID: 1109J25.d Dilution: 1.0 Initial Weight/Volume: 100 mL

Analysis Date: 09/09/2014 1506 Final Weight/Volume: 4.0 mL

Prep Date: 09/07/2014 1210 Injection Volume: 10 uL

 $\mbox{ Analyte } \mbox{ Result (ug/L)} \mbox{ Qualifier } \mbox{ MDL } \mbox{ RL}$

Formaldehyde 7.8 J 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SH-1

Lab Sample ID: 180-36441-18 Date Sampled: 09/05/2014 1215

Client Matrix: Water Date Received: 09/06/2014 0915

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111485 Instrument ID: CHLCJ
Prep Method: 8315_W_Prep Prep Batch: 640-111453 Lab File ID: 1109J26.d

Dilution: 1.0 Initial Weight/Volume: 100 mL

 Analysis Date:
 09/09/2014 1518
 Final Weight/Volume:
 4.0 mL

 Prep Date:
 09/07/2014 1210
 Injection Volume:
 10 uL

Analyte Result (ug/L) Qualifier MDL RL Formaldehyde 15 J 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-1

Lab Sample ID: 180-36441-19 Date Sampled: 09/05/2014 1225

Client Matrix: Water Date Received: 09/06/2014 0915

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111485 Instrument ID: CHLCJ

Prep Method: 8315_W_Prep Prep Batch: 640-111453 Lab File ID: 1109J27.d Dilution: 1.0 Lab File ID: 1109J27.d Initial Weight/Volume: 100 mL

Analysis Date: 09/09/2014 1530 Final Weight/Volume: 4.0 mL
Prep Date: 09/07/2014 1210 Injection Volume: 10 uL

Analyte Result (ug/L) Qualifier MDL RL Formaldehyde 9.0 J 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: EB090514

Lab Sample ID: 180-36441-20 Date Sampled: 09/05/2014 1230

Client Matrix: Water Date Received: 09/06/2014 0915

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111485 Instrument ID: CHLCJ

Prep Method: 8315_W_Prep Prep Batch: 640-111453 Lab File ID: 1109J29.d Dilution: 1.0 Initial Weight/Volume: 100 mL

 Analysis Date:
 09/09/2014 1553
 Final Weight/Volume:
 4.0 mL

 Prep Date:
 09/07/2014 1210
 Injection Volume:
 10 uL

Analyte Result (ug/L) Qualifier MDL RL Formaldehyde ND 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: DUP090514

Lab Sample ID: 180-36441-21 Date Sampled: 09/05/2014 0000

Client Matrix: Water Date Received: 09/06/2014 0915

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111485 Instrument ID: CHLCJ
Prep Method: 8315_W_Prep Prep Batch: 640-111453 Lab File ID: 1109J30

Prep Method: 8315_W_Prep Prep Batch: 640-111453 Lab File ID: 1109J30.d Dilution: 1.0 Lab File ID: 1109J30.d Initial Weight/Volume: 100 mL

 Analysis Date:
 09/09/2014 1605
 Final Weight/Volume:
 4.0 mL

 Prep Date:
 09/07/2014 1210
 Injection Volume:
 10 uL

Analyte Result (ug/L) Qualifier MDL RL

Formaldehyde ND 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-5 LANGAN

Lab Sample ID: 180-36441-1 Date Sampled: 09/04/2014 1125

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77000 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A038.d

Dilution: 5.0 Initial Weight/Volume: 4 mL
Analysis Date: 09/09/2014 2208 Final Weight/Volume: 4 mL

 Analysis Date:
 09/09/2014 2208
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

Analyte Result (ug/L) Qualifier RL RL p-Phenolsulfonic acid ND 50 50 50 50 Benzenesulfonic acid ND Resorcinol ND 50 50 UJ 2,3',4-Trihydroxydiphenyl ND 50 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-5 LANGAN

Lab Sample ID: 180-36441-1 Date Sampled: 09/04/2014 1125

Client Matrix: Water Date Received: 09/06/2014 0915

Initial Weight/Volume:

4 mL

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77000 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A028.d

Dilution: 10

 Analysis Date:
 09/09/2014 1936
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

Analyte Result (ug/L) Qualifier RL RL

m-Benzenedisulfonic acid 1300 D 100

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SED-103

Lab Sample ID: 180-36441-2 Date Sampled: 09/04/2014 1220

Client Matrix: Solid Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77003 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76937 Lab File ID: R091014C2001.d

Dilution: 1.0 Initial Weight/Volume: 10.11 g
Analysis Date: 09/11/2014 0847 Final Weight/Volume: 20 mL

 Analysis Date:
 09/11/2014 0847
 Final Weight/Volume:
 20 mL

 Prep Date:
 09/08/2014 1330
 Injection Volume:
 50 uL

DryWt Corrected: N Result (ug/Kg) Qualifier RL Analyte RL 20 20 m-Benzenedisulfonic acid 340 J ND 20 p-Phenolsulfonic acid 20 UJ Benzenesulfonic acid ND 20 20 R Resorcinol ND 20 20 2,3',4-Trihydroxydiphenyl ND R 59 59

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-4 LANGAN

2,3',4-Trihydroxydiphenyl

Lab Sample ID: 180-36441-3 Date Sampled: 09/04/2014 1235

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77000 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A042.d

Dilution: 5.0 Lab File ID. Ross 14 Ac-

 Analysis Date:
 09/09/2014 2306
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

ND

Analyte Result (ug/L) Qualifier RL RL p-Phenolsulfonic acid ND 50 50 ND 50 50 Benzenesulfonic acid ND 50 50 Resorcinol

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-4 LANGAN

Lab Sample ID: 180-36441-3 Date Sampled: 09/04/2014 1235

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77000 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A034.d

Dilution: 10 Initial Weight/Volume: 4 mL Analysis Date: 09/09/2014 2106 Final Weight/Volume: 4 mL

Analysis Date: 09/09/2014 2106 Final Weight/Volume: 4 mL

Prep Date: 09/08/2014 1245 Injection Volume: 50 uL

Analyte Result (ug/L) Qualifier RL RL m-Benzenedisulfonic acid 1300 D 100

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SED-102

Lab Sample ID: 180-36441-4 Date Sampled: 09/04/2014 1310

Client Matrix: Solid Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77003 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76937 Lab File ID: R091014C2013.d

Dilution: 1.0 Initial Weight/Volume: 10.16 g
Analysis Date: 09/11/2014 1146 Final Weight/Volume: 20 mL

Prep Date: 09/17/2014 1146 Final Weight/Volume: 20 mL Prip Date: 09/08/2014 1330 Injection Volume: 50 uL

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL	RL
p-Phenolsulfonic acid		ND	UJ	20	20
Benzenesulfonic acid		33	→ J	20	20
Resorcinol		ND	R	20	20 -
2,3',4-Trihydroxydiphenyl		ND	R	59	59

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SED-102

Lab Sample ID: 180-36441-4 Date Sampled: 09/04/2014 1310

Client Matrix: Solid Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77002 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76937 Lab File ID: R090914B3002.d

 Dilution:
 20
 Initial Weight/Volume:
 10.16 g

 Analysis Date:
 09/11/2014 0138
 Final Weight/Volume:
 20 mL

Prep Date: 09/08/2014 1330 Injection Volume: 50 uL

Analyte DryWt Corrected: N Result (ug/Kg) Qualifier RL RL

m-Benzenedisulfonic acid 5000 D 390 390

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-3 LANGAN

2,3',4-Trihydroxydiphenyl

Lab Sample ID: 180-36441-5 Date Sampled: 09/04/2014 1320

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77000 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A048.d Dilution: 5.0 Initial Weight/Volume: 4 mL

 Dilution:
 5.0
 Initial Weight/Volume:
 4 mL

 Analysis Date:
 09/10/2014 0036
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

ND

Analyte Result (ug/L) Qualifier RL RL p-Phenolsulfonic acid 50 50 70 ND 50 50 Benzenesulfonic acid ND 50 50 Resorcinol

50

4 mL

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-3 LANGAN

Lab Sample ID: 180-36441-5 Date Sampled: 09/04/2014 1320

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77000 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A020.d

Dilution: 15 Initial Weight/Volume:

 Analysis Date:
 09/09/2014 1737
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

Analyte Result (ug/L) Qualifier RL RL m-Benzenedisulfonic acid 1700 D 150 150

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SED-101

Lab Sample ID: 180-36441-6 Date Sampled: 09/04/2014 1400

Client Matrix: Solid Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77003 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76937 Lab File ID: R091014C2017.d

Dilution: 1.0 Initial Weight/Volume: 10.25 g
Analysis Date: 09/11/2014 1246 Final Weight/Volume: 20 mL

Analysis Date: 09/11/2014 1246 Final Weight/Volume: 20 mL

Prep Date: 09/08/2014 1330 Injection Volume: 50 uL

DryWt Corrected: N Result (ug/Kg) Qualifier RL RL Analyte 20 20 m-Benzenedisulfonic acid 140 R 20 20 p-Phenolsulfonic acid ND * UJ Benzenesulfonic acid 20 20 ND R Resorcinol ND 20 20 2,3',4-Trihydroxydiphenyl ND R 59 59

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-7

Lab Sample ID: 180-36441-7 Date Sampled: 09/04/2014 1430

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: Analysis Batch: 200-77000 Instrument ID: LC3062B In-House Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A052.d

Dilution: Initial Weight/Volume: 5.0 4 mL Analysis Date: 09/10/2014 0137 Final Weight/Volume: 4 mL

Prep Date: 09/08/2014 1245 Injection Volume: 50 uL

Analyte Result (ug/L) Qualifier RL RL p-Phenolsulfonic acid 50 50 120 50 50 ND Benzenesulfonic acid ND 50 50 Resorcinol 2,3',4-Trihydroxydiphenyl ND 50 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-7

Lab Sample ID: 180-36441-7 Date Sampled: 09/04/2014 1430

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77000 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A024.d

Dilution: 15 Initial Weight/Volume: 4 mL

 Analysis Date:
 09/09/2014 1837
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

Analyte Result (ug/L) Qualifier RL RL m-Benzenedisulfonic acid 1900 $_{
m D}$ 150 150

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-5

2,3',4-Trihydroxydiphenyl

Lab Sample ID: 180-36441-8 Date Sampled: 09/04/2014 1515

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77000 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A056.

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A056.d Dilution: 5.0 Initial Weight/Volume: 4 mL

 Analysis Date:
 09/10/2014 0236
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

ND

Analyte Result (ug/L) Qualifier RL RL p-Phenolsulfonic acid 50 50 120 ND 50 50 Benzenesulfonic acid ND 50 50 Resorcinol

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-5

Lab Sample ID: 180-36441-8 Date Sampled: 09/04/2014 1515

Client Matrix: Water Date Received: 09/06/2014 0915

Initial Weight/Volume:

4 mL

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77000 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A014.d

Dilution: 20

 Analysis Date:
 09/09/2014 1607
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

Analyte Result (ug/L) Qualifier RL RL

m-Benzenedisulfonic acid 2400 D 200 200

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-6

2,3',4-Trihydroxydiphenyl

Lab Sample ID: 180-36441-9 Date Sampled: 09/04/2014 1600

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77000 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A062.d Dilution: 5.0 Initial Weight/Volume: 4 mL

Analysis Date: 09/10/2014 0405 Final Weight/Volume: 4 mL

Prep Date: 09/08/2014 1245 Injection Volume: 50 uL

ND

Analyte Result (ug/L) Qualifier RL RL 50 50 m-Benzenedisulfonic acid 130 50 ND 50 p-Phenolsulfonic acid UJ Benzenesulfonic acid ND 50 50 Resorcinol ND 50 50

50

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-2 LANGAN

2,3',4-Trihydroxydiphenyl

Lab Sample ID: 180-36441-10 Date Sampled: 09/04/2014 1615

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77000 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A066.d

 Dilution:
 5.0
 Initial Weight/Volume:
 4 mL

 Analysis Date:
 09/10/2014 0505
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

ND

Analyte Result (ug/L) Qualifier RL RL 50 50 m-Benzenedisulfonic acid 130 ND 50 50 p-Phenolsulfonic acid UJ Benzenesulfonic acid ND 50 50 Resorcinol ND 50 50

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-1 LANGAN

Lab Sample ID: 180-36441-11 Date Sampled: 09/04/2014 1630

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77000 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R090914A070.d

Dilution: 5.0 Initial Weight/Volume: 4 mL

 Analysis Date:
 09/10/2014 0605
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

Analyte Result (ug/L) Qualifier RL RL 50 50 m-Benzenedisulfonic acid 130 ND 50 50 p-Phenolsulfonic acid UJ Benzenesulfonic acid ND 50 50 Resorcinol ND 50 50 2,3',4-Trihydroxydiphenyl ND 50 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: DUP090414

Lab Sample ID: 180-36441-12 Date Sampled: 09/04/2014 0000

Client Matrix: Solid Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77003 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76937 Lab File ID: R091014C2028.d

Dilution: 1.0 Initial Weight/Volume: 10.30 g Analysis Date: 09/11/2014 1535 Final Weight/Volume: 20 mL

Analysis Date: 09/11/2014 1535 Final Weight/Volume: 20 mL Prep Date: 09/08/2014 1330 Injection Volume: 50 uL

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL	RL
m-Benzenedisulfonic acid		160	J	19	19
p-Phenolsulfonic acid		MD	R	19	19.
Benzenesulfonic acid		ND	∸ UJ	19	19
Resorcinol		ND:	R	19	19
2,3',4-Trihydroxydiphenyl		N D-	R	58	5 8

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-4

2,3',4-Trihydroxydiphenyl

Lab Sample ID: 180-36441-13 Date Sampled: 09/05/2014 0955

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77108 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091114D011.d

Dilution: 5.0 Initial Weight/Volume: 4 mL

 Analysis Date:
 09/11/2014 1919
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

ND

Analyte Result (ug/L) Qualifier RL RL p-Phenolsulfonic acid 50 50 150 50 50 54 Benzenesulfonic acid Resorcinol ND 50 50

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-4

Lab Sample ID: 180-36441-13 Date Sampled: 09/05/2014 0955

Client Matrix: Water Date Received: 09/06/2014 0915

Initial Weight/Volume:

4 mL

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77003 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091014C002.d

Dilution: 25

 Analysis Date:
 09/11/2014 0507
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

Analyte Result (ug/L) Qualifier RL RL

m-Benzenedisulfonic acid 3700 D 250 250

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-3

2,3',4-Trihydroxydiphenyl

Lab Sample ID: 180-36441-14 Date Sampled: 09/05/2014 1030

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77108 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091114D021.d Dilution: 5.0 Initial Weight/Volume: 4 mL

 Analysis Date:
 09/11/2014 2148
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

ND

Analyte Result (ug/L) Qualifier RL RL p-Phenolsulfonic acid 50 50 180 50 50 ND Benzenesulfonic acid ND 50 50 Resorcinol

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-3

Lab Sample ID: 180-36441-14 Date Sampled: 09/05/2014 1030

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77108 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091114D003.d

 Dilution:
 20
 Initial Weight/Volume:
 4 mL

 Analysis Date:
 09/11/2014 1720
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

Analyte Result (ug/L) Qualifier RL RL

m-Benzenedisulfonic acid 3100 D 200 200

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-8

Lab Sample ID: 180-36441-15 Date Sampled: 09/05/2014 1100

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77108 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091114D025.d

Dilution: 5.0 Initial Weight/Volume: 4 mL

 Analysis Date:
 09/11/2014 2248
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

Analyte Result (ug/L) Qualifier RL RL p-Phenolsulfonic acid 50 50 550 50 ND 50 Benzenesulfonic acid 300 50 50 Resorcinol 2,3',4-Trihydroxydiphenyl ND 50 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-8

Lab Sample ID: 180-36441-15 Date Sampled: 09/05/2014 1100

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77108 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091114D007.d

Dilution: 10 Initial Weight/Volume: 4 mL Analysis Date: 09/11/2014 1821 Final Weight/Volume: 4 mL

Prep Date: 09/08/2014 1245 Injection Volume: 50 uL

 Analyte
 Result (ug/L)
 Qualifier
 RL
 RL

 m-Benzenedisulfonic acid
 1000
 D
 100
 100

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SW-1

2,3',4-Trihydroxydiphenyl

Lab Sample ID: 180-36441-16 Date Sampled: 09/05/2014 1105

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77108 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091114D030.d Dilution: 5.0 Initial Weight/Volume: 4 mL

 Analysis Date:
 09/12/2014 0018
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

ND

Analyte Result (ug/L) Qualifier RL RL 50 50 m-Benzenedisulfonic acid 100 50 ND 50 p-Phenolsulfonic acid UJ Benzenesulfonic acid ND 50 50 Resorcinol ND 50 50

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-2

Lab Sample ID: 180-36441-17 Date Sampled: 09/05/2014 1145

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77108 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091114D034.d

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091114D03

Dilution: 5.0 Initial Weight/Volume: 4 mL

 Analysis Date:
 09/12/2014 0118
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

Analyte Result (ug/L) Qualifier RL RL 50 50 m-Benzenedisulfonic acid 110 ND 50 50 p-Phenolsulfonic acid UJ Benzenesulfonic acid ND 50 50 Resorcinol ND 50 50 2,3',4-Trihydroxydiphenyl ND 50 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SH-1

Lab Sample ID: 180-36441-18 Date Sampled: 09/05/2014 1215

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77108 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091114D038.d Dilution: 5.0 Initial Weight/Volume: 4 mL

Analysis Date: 09/12/2014 0217 Final Weight/Volume: 4 mL
Prep Date: 09/08/2014 1245 Injection Volume: 50 uL

Analyte Result (ug/L) Qualifier RL RL 50 50 m-Benzenedisulfonic acid 110 50 ND 50 p-Phenolsulfonic acid UJ Benzenesulfonic acid ND 50 50 Resorcinol ND 50 50 2,3',4-Trihydroxydiphenyl ND 50 50

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: SG-1

2,3',4-Trihydroxydiphenyl

Lab Sample ID: 180-36441-19 Date Sampled: 09/05/2014 1225

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77192 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091214B004.d Dilution: 5.0 Initial Weight/Volume: 4 mL

 Analysis Date:
 09/12/2014 1537
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

ND

Analyte Result (ug/L) Qualifier RL RL 50 50 m-Benzenedisulfonic acid 120 ND 50 50 p-Phenolsulfonic acid Benzenesulfonic acid ND 50 50 Resorcinol ND 50 50

50

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: EB090514

2,3',4-Trihydroxydiphenyl

Lab Sample ID: 180-36441-20 Date Sampled: 09/05/2014 1230

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77192 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091214B008.d Dilution: 5.0 Initial Weight/Volume: 4 mL

 Analysis Date:
 09/12/2014 1637
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

ND

Result (ug/L) Qualifier RL RL Analyte ND 50 50 m-Benzenedisulfonic acid ND 50 50 p-Phenolsulfonic acid Benzenesulfonic acid ND 50 50 Resorcinol ND 50 50

50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: DUP090514

Lab Sample ID: 180-36441-21 Date Sampled: 09/05/2014 0000

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: Analysis Batch: 200-77192 Instrument ID: LC3062B In-House

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091214B012.d

Dilution: Initial Weight/Volume: 5.0 4 mL Analysis Date: 09/12/2014 1736 Final Weight/Volume: 4 mL

Prep Date: 09/08/2014 1245 Injection Volume: 50 uL

Analyte Result (ug/L) Qualifier RL RL p-Phenolsulfonic acid 50 50 240 50 50 Benzenesulfonic acid 51 ND 50 50 Resorcinol 2,3',4-Trihydroxydiphenyl ND 50 50

Client: ARCADIS U.S. Inc Job Number: 180-36441-1

Client Sample ID: DUP090514

Lab Sample ID: 180-36441-21 Date Sampled: 09/05/2014 0000

Client Matrix: Water Date Received: 09/06/2014 0915

In-House Sulfonic Acids by LCMS/MS

Analysis Method: In-House Analysis Batch: 200-77003 Instrument ID: LC3062B

Prep Method: In House Prep Batch: 200-76950 Lab File ID: R091014C010.d

Dilution: 25 Initial Weight/Volume: 4 mL

Analysis Date: 09/11/2014 0707 Final Weight/Volume: 4 ml

 Analysis Date:
 09/11/2014 0707
 Final Weight/Volume:
 4 mL

 Prep Date:
 09/08/2014 1245
 Injection Volume:
 50 uL

 Analyte
 Result (ug/L)
 Qualifier
 RL
 RL

 m-Benzenedisulfonic acid
 3200
 D
 250
 250

10/09/2014

Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Client Sample ID: SW-5 Langan

TestAmerica Pittsburgh

Lab Sample ID: 180-36402-1 Date Sampled: 09/04/2014 1125

Client Matrix: Water Date Received: 09/05/2014 1049

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111477 Instrument ID: CHLCJ
Prep Method: 8315_W_Prep Prep Batch: 640-111423 Lab File ID: 2108J19

Prep Method: 8315_W_Prep Prep Batch: 640-111423 Lab File ID: 2108J19.d Dilution: 1.0 Initial Weight/Volume: 100 mL

 Analysis Date:
 09/08/2014 1944
 Final Weight/Volume:
 4.0 mL

 Prep Date:
 09/05/2014 1015
 Injection Volume:
 10 uL

Analyte Result (ug/L) Qualifier MDL RL Formaldehyde ND 5.0 50

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Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Client Sample ID: Sed-103

Lab Sample ID: 180-36402-2 Date Sampled: 09/04/2014 1220

Client Matrix: Solid % Moisture: 18.1 Date Received: 09/05/2014 1049

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111534 Instrument ID: CHLCJ

Prep Method: 8315_S_Prep Prep Batch: 640-111503 Lab File ID: 1110J7.d Dilution: 1.0 Initial Weight/Volume: 20.1 g

Analysis Date: 09/10/2014 1415 Final Weight/Volume: 4.0 mL
Prep Date: 09/10/2014 0730 Injection Volume: 10 uL

Analyte DryWt Corrected: Y Result (ug/Kg) Qualifier MDL RL

Formaldehyde 510 95 120

Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Client Sample ID: SW-4 Langan

Lab Sample ID: 180-36402-3 Date Sampled: 09/04/2014 1235

Client Matrix: Water Date Received: 09/05/2014 1049

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111477 Instrument ID: CHLCJ Prep Method: 8315_W_Prep Prep Batch: 640-111423 Lab File ID: 2108J20

Prep Method:8315_W_PrepPrep Batch:640-111423Lab File ID:2108J20.dDilution:1.0Initial Weight/Volume:100 mL

 Analysis Date:
 09/08/2014 1956
 Final Weight/Volume:
 4.0 mL

 Prep Date:
 09/05/2014 1015
 Injection Volume:
 10 uL

Analyte Result (ug/L) Qualifier MDL RL

Formaldehyde ND 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Client Sample ID: Sed-102

Lab Sample ID: 180-36402-4 Date Sampled: 09/04/2014 1310

Client Matrix: Solid % Moisture: 24.7 Date Received: 09/05/2014 1049

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111534 Instrument ID: CHLCJ

Prep Method: 8315_S_Prep Prep Batch: 640-111503 Lab File ID: 1110J8.d Dilution: 1.0 Initial Weight/Volume: 20.1 g

Analysis Date: 09/10/2014 1427 Final Weight/Volume: 4.0 mL
Prep Date: 09/10/2014 0730 Injection Volume: 10 uL

Analyte DryWt Corrected: Y Result (ug/Kg) Qualifier MDL RL

Formaldehyde 130 100 130

Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Client Sample ID: SW-3 Langan

Lab Sample ID: 180-36402-5 Date Sampled: 09/04/2014 1320

Client Matrix: Water Date Received: 09/05/2014 1049

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111477 Instrument ID: CHLCJ Prep Method: 8315_W_Prep Prep Batch: 640-111423 Lab File ID: 2108J21

Prep Method: 8315_W_Prep Prep Batch: 640-111423 Lab File ID: 2108J21.d Dilution: 1.0 Initial Weight/Volume: 100 mL

 Analysis Date:
 09/08/2014 2007
 Final Weight/Volume:
 4.0 mL

 Prep Date:
 09/05/2014 1015
 Injection Volume:
 10 uL

Analyte Result (ug/L) Qualifier MDL RL

Formaldehyde ND 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Client Sample ID: Sed-101

Lab Sample ID: 180-36402-6 Date Sampled: 09/04/2014 1400

Client Matrix: Solid % Moisture: 17.9 Date Received: 09/05/2014 1049

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111534 Instrument ID: CHLCJ
Prep Method: 8315_S_Prep Prep Batch: 640-111503 Lab File ID: 1110J11.d

Dilution: 1.0 Initial Weight/Volume: 20.0 g

Analysis Date: 09/10/2014 1503 Final Weight/Volume: 4.0 ml

 Analysis Date:
 09/10/2014 1503
 Final Weight/Volume:
 4.0 mL

 Prep Date:
 09/10/2014 0730
 Injection Volume:
 10 uL

Analyte DryWt Corrected: Y Result (ug/Kg) Qualifier MDL RL Formaldehyde 390 95 120

Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Client Sample ID: SG-7

Lab Sample ID: 180-36402-7 Date Sampled: 09/04/2014 1430

Client Matrix: Water Date Received: 09/05/2014 1049

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111477 Instrument ID: CHLCJ

Prep Method: 8315_W_Prep Prep Batch: 640-111423 Lab File ID: 2108J22.d Dilution: 1.0 Initial Weight/Volume: 100 mL

Analysis Date: 09/08/2014 2019 Final Weight/Volume: 4.0 mL
Prep Date: 09/05/2014 1015 Injection Volume: 10 uL

Analyte Result (ug/L) Qualifier MDL RL

Formaldehyde ND 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Client Sample ID: SG-5

Lab Sample ID: 180-36402-8 Date Sampled: 09/04/2014 1515

Client Matrix: Date Received: 09/05/2014 1049 Water

8315A Carbonyl Compounds (HPLC)

Analysis Method: Analysis Batch: 640-111485 Instrument ID: CHLCJ 8315A

Prep Method: 8315_W_Prep Prep Batch: 640-111423 Lab File ID: 1109J8.d Dilution: Initial Weight/Volume: 100 mL

Analysis Date: 09/09/2014 1145 Final Weight/Volume: 4.0 mL Prep Date: 09/05/2014 1015 Injection Volume: 10 uL

Analyte Result (ug/L) Qualifier MDL RL

Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Client Sample ID: SG-6

Lab Sample ID: 180-36402-9 Date Sampled: 09/04/2014 1600

Client Matrix: Water Date Received: 09/05/2014 1049

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111485 Instrument ID: CHLCJ

 Prep Method:
 8315_W_Prep
 Prep Batch:
 640-111423
 Lab File ID:
 1109J9.d

 Dilution:
 1.0
 Initial Weight/Volume:
 100 mL

 Analysis Date:
 09/09/2014 1157
 Final Weight/Volume:
 4.0 mL

 Prep Date:
 09/05/2014 1015
 Injection Volume:
 10 uL

Analyte Result (ug/L) Qualifier MDL RL

Formaldehyde ND H UJ 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Client Sample ID: SW-2 Langan

Lab Sample ID: 180-36402-10 Date Sampled: 09/04/2014 1615

Client Matrix: Water Date Received: 09/05/2014 1049

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111485 Instrument ID: CHLCJ
Prep Method: 8315 W Prep Prep Batch: 640-111423 Lab File ID: 1109J10

Prep Method: 8315_W_Prep Prep Batch: 640-111423 Lab File ID: 1109J10.d Dilution: 1.0 Initial Weight/Volume: 100 mL

 Analysis Date:
 09/09/2014 1209
 Final Weight/Volume:
 4.0 mL

 Prep Date:
 09/05/2014 1015
 Injection Volume:
 10 uL

Analyte Result (ug/L) Qualifier MDL RL

Formaldehyde 5.5 J H 5.0 50

Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Client Sample ID: SW-1 Langan

Lab Sample ID: 180-36402-11 Date Sampled: 09/04/2014 1630

Client Matrix: Water Date Received: 09/05/2014 1049

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111485 Instrument ID: CHLCJ

Prep Method: 8315_W_Prep Prep Batch: 640-111423 Lab File ID: 1109J11.d Dilution: 1.0 Initial Weight/Volume: 100 mL

 Analysis Date:
 09/09/2014 1221
 Final Weight/Volume:
 4.0 mL

 Prep Date:
 09/05/2014 1015
 Injection Volume:
 10 uL

 Analyte
 Result (ug/L)
 Qualifier
 MDL
 RL

 Formaldehyde
 7.0
 J H
 5.0
 50

Client: ARCADIS U.S. Inc Job Number: 180-36402-1

Client Sample ID: DUP 090414

Lab Sample ID: 180-36402-12 Date Sampled: 09/04/2014 0000

Client Matrix: Solid % Moisture: 17.0 Date Received: 09/05/2014 1049

8315A Carbonyl Compounds (HPLC)

Analysis Method: 8315A Analysis Batch: 640-111534 Instrument ID: CHLCJ
Prep Method: 8315_S_Prep Prep Batch: 640-111503 Lab File ID: 1110J12.d

Dilution: 1.0 Initial Weight/Volume: 20.4 g

Analysis Date: 09/10/2014 1514 Final Weight/Volume: 4.0 mL

 Analysis Date:
 09/10/2014 1514
 Final Weight/Volume:
 4.0 mL

 Prep Date:
 09/10/2014 0730
 Injection Volume:
 10 uL

Analyte DryWt Corrected: Y Result (ug/Kg) Qualifier MDL RL Formaldehyde 690 92 120



INDSPEC Petrolia

Data Review

PETROLIA, PENNSYLVANIA

Volatile and Miscellaneous analyses

SDG #: 180-39575

Analyses Performed By: TestAmerica Laboratories Pittsburgh, PA Burlington, VT Tallahassee, FL

Report #: 22965R Review Level: Tier III

Project: B0039303.0001.00001

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 180-39575 and 180-36402-1 for samples collected in association with the INDSPEC site in Petrolia, PA. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody.

Overall, the quality control data, as defined in the USEPA SW-846 Methods 8260B/8260C/8270C/8315A and laboratory performance criteria, were within the guidelines specified in the method with the exception of those deviations specifically mentioned in this review. The data validation resulted in a number of detect/non-detect sample results being qualified as estimated (J/UJ) respectively due to minor QC failures, or qualified as non-detect (UB) due to associated quality assurance (QA) blanks (i.e., method, field blanks) contamination. Additionally, several non-detected sample results were qualified as rejected (R) due to major QC failures; m-Benzenedisulfonic acid, p-Phenolsulfonic acid, Benzenesulfonic acid, Resorcinol and 2,3',4-Trihydroxydiphenyl associated with SED-103; Resorcinol and 2,3',4-Trihydroxydiphenyl associated with sediment samples SED-101 and SED-102; and 2,3',4-Trihydroxydiphenyl associated with sediment sample DUP120314 were qualified as rejected due to matrix spike recovery deviations. With the exception of the major QC deviations listed here, all the data associated with this sampling event are usable for the intended purpose.

Analyses were performed on the following samples:

			Sample	Parent	Analysis				
Sample ID	Lab ID	Matrix	Collection Date	Sample	voc	svoc	GRO	DRO	MISC
SW-5_LANGAN	180-39575-1	Water	12/3/2014		Х				Χ
SED-103	180-39575-2	Sediment	12/3/2014		Х				Х
SW-4_LANGAN	180-39575-3	Water	12/3/2014		Х				Х
SED-102	180-39575-4	Sediment	12/3/2014		Х				Х
SW-3_LANGAN	180-39575-5	Water	12/3/2014		Х				Х
SED-101	180-39575-6	Sediment	12/3/2014		Х				Х
DUP120314	180-39575-7	Sediment	12/3/2014	SED-101	Х				Х
SG-7	180-39575-8	Water	12/3/2014		Х				Х
SG-5	180-39575-9	Water	12/3/2014		Х				Х
SG-4	180-39575-10	Water	12/4/2014		Х				Х
SG-3	180-39575-11	Water	12/4/2014		Х				Х
DUP120414	180-39575-12	Water	12/4/2014	SG-3	Χ				Х
SG-8	180-39575-13	Water	12/4/2014		Х				Х
SW-1	180-39575-14	Water	12/4/2014		Х				Х
SG-2	180-39575-15	Water	12/4/2014		Х				
SH-1	180-39575-16	Water	12/4/2014		Х				Х
SG-1	180-39575-17	Water	12/4/2014		Х				Х
SG-6	180-39575-18	Water	12/4/2014		Х				Х
SW-2_LANGAN	180-39575-19	Water	12/4/2014		Х			_	Х

			Sample	Parent	Analysis				
Sample ID	Lab ID	Matrix	Collection Date	Sample	voc	svoc	GRO	DRO	MISC
SW-1_LANGAN	180-39575-20	Water	12/4/2014		Х				Χ
FB120414	180-39575-21	Water	12/4/2014		Х				Χ
TRIP BLANK	180-39575-22	Water	12/4/2014		Х				Х

Notes:

- 1. Miscellaneous analyses include formaldehyde, sulfate and site specific COCs (m-Benzenedisulfonic acid, p-Phenolsulfonic acid, Benzenesulfonic acid, Resorcinol and 2,3',4-Trihydroxydiphenyl). Additionally, Phenols were analyzed for water samples.
- 2. Sulfonic Acid analysis was performed by TestAmerica Burlington.
- 3. Formaldehyde analysis was performed by TestAmerica Tallahassee.
- 4. VOCs and Sulfate analyses were performed by TestAmerica Pittsburgh; the Lab IDs listed above reflect those assigned by TestAmerica Pittsburgh.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

			Reported		mance ptable	Not
	Items Reviewed	No	Yes	No	Yes	Required
1.	Sample receipt condition		Х		Х	
2.	Requested analyses and sample results		Х		Х	
3.	Collection Technique (grab, composite, etc.)		Х		Х	
4.	Methods of analysis		Х		Х	
5.	Reporting limits		Х		Х	
6.	Sample collection date		Х		Х	
7.	Laboratory sample received date		Х		Х	
8.	Sample preservation verification (as applicable)		Х		Х	
9.	Sample preparation/extraction/analysis dates		Х		Х	
10.	Fully executed Chain-of-Custody (COC) form		Х		Х	
11.	Narrative summary of QA or sample problems provided		Х		Х	
12.	Data Package Completeness and Compliance		Х		Х	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Methods 8260B, 8260C, 8270C, 8315A and the LCMS/MS method for Sulfonic Acids based on TestAmerica-Burlington's SOP BR-LC-005. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999 as modified or applicable to the method, using method requirements and professional judgment as criteria for qualification.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and

provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2 s.u.
SW-846 8260	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks, trip blanks, and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure sample storage contamination. Rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All compounds associated with the QA blanks exhibited a concentration less than the MDL, with the exception of the compounds listed in the following table. Sample results associated with QA blank contamination that were greater than the BAL resulted in the removal of the laboratory qualifier (B) of data. Sample results less than the BAL associated with the following sample locations were qualified as listed in the following table.

Sample Locations	Analytes	Sample Result	Qualification
SED-103	Methylene chloride (MB)	Detected sample results >RL and <bal< td=""><td>"UB" at detected sample concentration</td></bal<>	"UB" at detected sample concentration
SED-102 SED-101 DUP120314	Methylene chloride (MB)	Detected sample results <rl <bal<="" and="" td=""><td>"UB" at the RL</td></rl>	"UB" at the RL

RL Reporting limit MB Method blank

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SED-101		Methyl Acetate	-25.5%
SED-102 SED-103	CCV %D	Methylene chloride	21.3%
DUP120314		Trichlorofluoromethane	23.3%
SG-4 SH-1 SG-1	ICV %RSD	Methylene chloride	20.0%
SG-6 SW-2_LANGAN SW-1_LANGAN TRIP BLANK	ICV /NOD	cis-1,3-Dichloropropane	16.0%
SG-4		Bromomethane	-25.9%
TRIP BLANK		Bromoform	20.4%
SH-1 SG-1	CCV %D	Chloromethane	30.2%
SG-6		Bromomethane	-20.5%
SW-2_LANGAN SW-1_LANGAN		2-Hexanone	28.8%
		Carbon tetrachloride	28.3%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
	RRF <0.05	Non-detect	R
	KKF <0.05	Detect	J
Initial and Continuing Calibration	RRF <0.01 ¹	Non-detect	R
	KKF <0.01	Detect	J
	RRF >0.05 or RRF >0.01 ¹	Non-detect	No Action
	KKF >0.03 01 KKF >0.01	Detect	NO ACTION
	%RSD > 15% or a correlation	Non-detect	UJ
Initial Calibration	coefficient <0.99	Detect	J
	%RSD >90%	Non-detect	R
	/6K3D >90 /6	Detect	J
	%D >20% (increase in sensitivity)	Non-detect	No Action
	//bD >20 // (Increase in sensitivity)	Detect	J
Continuing Calibration	%D >20% (decrease in sensitivity)	Non-detect	UJ
Continuing Calibration	//bD >20 // (decrease in sensitivity)	Detect	J
	%D >90% (increase/decrease in	Non-detect	R
	sensitivity)	Detect	J

RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within the control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
	1,1,2,2-Tetrachloroethane	<ll but="">10%</ll>	<ll but="">10%</ll>
	1,1,2-Trichloroethane	>UL	>UL
	1,2,4-Trichlorobenzene	<ll but="">10%</ll>	AC
	2-Hexanone	>UL	>UL
	Benzene	>UL	AC
SED-102	Bromoform	<ll but="">10%</ll>	AC
	Chloroethane	>UL	>UL
	Methylcyclohexane	>UL	>UL
	Trichlorofluoromethane	>UL	>UL
	Vinyl chloride	>UL	>UL
	Cyclohexane	AC	>UL

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
> the upper control limit (OL)	Detect	J
the lower central limit (LL) but > 100/	Non-detect	UJ
< the lower control limit (LL) but > 10%	Detect	J
< 10%	Non-detect	R
< 10%	Detect	J
Parent sample concentration > four times the MS/MSD	Detect	No Action
spiking solution concentration.	Non-detect	INO ACTION

8. Laboratory Control Sample (LCS) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
SED-101 SED-102 SED-103 DUP120314	trans-1,3-Dichloropropane	<ll but="">10%</ll>

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
the upper central limit (III.)	Non-detect	No Action
> the upper control limit (UL)	Detect	J
the lower central limit (LL) but > 400/	Non-detect	UJ
< the lower control limit (LL) but > 10%	Detect	J
< 10%	Non-detect	R
< 1070	Detect	J

9. Field Duplicate Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SG-3/	1,2-Dichlorobenzene	1.5	1.4	AC
	1,4-Dichlorobenzene	0.27 J	0.29 J	AC
	Acetone	3.2 J	5.0 U	AC
DUP120414	Benzene	0.11 J	1.0 U	AC
	Chlorobenzene	0.98 J	0.97 J	AC
	Ethyl ether	1.6	1.6	AC
SED-101/ DUP120314	1,2-Dichlorobenzene	1.3 J	2.1 J	AC
	Ethyl ether	11	13	AC
20. 1200	Carbon disulfide	6.0 U	1.5 J	AC

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not	
	No	Yes	No	Yes	Required	
GAS CHROMATOGRAPHY/MASS SPECTROME	TRY (GC/	MS)				
Tier II Validation		1	T		T	
Holding times		X		Х		
Reporting limits (units)		X		X		
Blanks						
A. Method blanks		X	X			
B. Equipment blanks		X		X		
C. Trip blanks		X		X		
Laboratory Control Sample (LCS)		X	X			
Laboratory Control Sample Duplicate(LCSD)					Х	
LCS/LCSD Precision (RPD)					Х	
Matrix Spike (MS)		Х	Х			
Matrix Spike Duplicate(MSD)		Х	Х			
MS/MSD Precision (RPD)		Х		Х		
Field/Lab Duplicate (RPD)		Х		Х		
Surrogate Spike Recoveries		Х		Х		
Dilution Factor		Х		Х		
Moisture Content		Х		Х		
Tier III Validation		•	•	•		
System performance and column resolution		Х		Х		
Initial calibration %RSDs		Х	Х			
Continuing calibration RRFs		Х		Х		
Continuing calibration %Ds		Х	Х			
Instrument tune and performance check		Х		Х		
Ion abundance criteria for each instrument used		Х		Х		
Internal standard		Х		Х		
Compound identification and quantitation			ı	1		
A. Reconstructed ion chromatograms		Х		Х		
B. Quantitation Reports		Х		Х		
C. RT of sample compounds within the established RT windows		Х		Х		
D. Quantitation transcriptions/calculations		Х		Х		

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required		
	No	Yes	No	Yes	Roquirou		
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)							
Reporting limits adjusted to reflect sample dilutions		Х		Х			

%RSD Relative standard deviation

%R

Percent recovery
Relative percent difference
Percent difference RPD

%D

SEMI-VOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270	Water 7 days from collection to extraction and 40 days from extraction to analysis		Cool to <6°C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6°C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the SVOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SG-3/ DUP120414	Phenol	0.93 U	0.93 U	AC

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Repo	rted		mance ptable	Not
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMET	RY (GC/N	IS)			
Tier II Validation					
Holding times		Х		Х	
Reporting limits (units)		Х		Х	
Blanks					
A. Method blanks		Х		Х	
B. Field blanks		Х		Х	
Laboratory Control Sample (LCS) %R		Х		Х	
Laboratory Control Sample Duplicate (LCSD) %R					Х
LCS/LCSD Precision (RPD)					Х
Matrix Spike (MS) %R		Х		Х	
Matrix Spike Duplicate(MSD) %R		Х		Х	
MS/MSD Precision (RPD)		Х		Х	
Field Duplicate (RPD)		Х		Х	
Surrogate Spike Recoveries		Х		Х	
Dilution Factor		Х		Х	
Moisture Content					Х
Tier III Validation					
System performance and column resolution		Х		Х	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х		Х	
Instrument tune and performance check		Х		Х	
Ion abundance criteria for each instrument used		Х		Х	
Internal standard		Х		Х	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
RT of sample compounds within the established RT windows		Х		Х	
D. Transcription/calculation errors present				X	
E. Reporting limits adjusted to reflect sample dilutions%RSD Relative standard deviation		Х		Х	

%RSD Relative standard deviation %R Percent recovery RPD Relative percent difference

%D Percent difference

SITE SPECIFIC COCs (m-Benzenedisulfonic acid, p-Phenolsulfonic acid, Benzenesulfonic acid, Resorcinol and 2,3',4-Trihydroxydiphenyl)

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
LCMS/MS method for Site-	Water	7 days from collection to analysis	Cool to <6 °C.
Specific COCs based on TestAmerica-Burlington's SOP BR-LC-005	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
		p-Phenolsulfonic acid	40.8%
SED-103	CCV %D	Benzenesulfonic acid	53.4%
SED-102	CCV %D	Resorcinol	60.9%
		2,3',4-Trihydroxydiphenyl	66.2%
	CCV %D	p-Phenolsulfonic acid	28.2%
SED 404		Benzenesulfonic acid	41.2%
SED-101		Resorcinol	56.7%
		2,3',4-Trihydroxydiphenyl	77.6%
DUP120314	CCV %D	Resorcinol	32.7%
DUP 120314	CCV %D	2,3',4-Trihydroxydiphenyl	72.2%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
	RRF <0.05	Non-detect	R
	KKF <0.05	Detect	J
Initial and Continuing	RRF <0.01 ¹	Non-detect	R
Calibration	KKF <0.01	Detect	J
	RRF >0.05 or RRF >0.01 ¹	Non-detect	No Action
	KKF >0.03 01 KKF >0.01	Detect	NO ACTION
	%RSD > 15% or a correlation	Non-detect	UJ
Initial Calibration	coefficient <0.99	Detect	J
Illitial Calibration	%RSD >90%	Non-detect	R
	/6K3D >90 /6	Detect	J
	%D >20% (increase in sensitivity)	Non-detect	No Action
	//bD >20 // (Increase in sensitivity)	Detect	J
Continuing Calibration	%D >20% (decrease in sensitivity)	Non-detect	UJ
	//bD >20 // (decrease in sensitivity)	Detect	J
	%D >90% (increase/decrease in	Non-detect	R
	sensitivity)	Detect	J

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS/MSD Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
	m-Benzenedisulfonic acid	<10%	NA
	p-Phenolsulfonic acid	<10%	NA
SED-103	Benzenesulfonic acid	<10%	NA
	Resorcinol	<10%	NA
	2,3',4-Trihydroxydiphenyl	<10%	NA
SW-4_LANGAN	p-Phenolsulfonic acid	>UL	NA
	p-Phenolsulfonic acid	AC	<ll but="">10%</ll>
SED-102	Benzenesulfonic acid	<ll but="">10%</ll>	<ll but="">10%</ll>
	Resorcinol	<10%	<10%
	2,3',4-Trihydroxydiphenyl	<10%	<10%
SW-3_LANGAN	2,3',4-Trihydroxydiphenyl	>UL	NA
SED-101	Resorcinol	<10%	NA
3ED-101	2,3',4-Trihydroxydiphenyl	<10%	NA
DUP120314	Resorcinol	<ll but="">10%</ll>	NA
DUP 120314	2,3',4-Trihydroxydiphenyl	<10%	NA
SG-7	2,3',4-Trihydroxydiphenyl >UL		NA
DUP120414	p-Phenolsulfonic acid	>UL	NA
DOP 120414	2,3',4-Trihydroxydiphenyl	>UL	NA

AC Acceptable NA Not Analyzed

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
the upper central limit (III.)	Non-detect	No Action
> the upper control limit (UL)	Detect	J
the lower central limit (LL) but a 100/	Non-detect	UJ
< the lower control limit (LL) but > 10%	Detect	J
. 100/	Non-detect	R
< 10%	Detect	J

Control Limit	Sample Result	Qualification
Parent sample concentration > four times the MS/MSD	Detect	No Action
spiking solution concentration.	Non-detect	INO ACTION

Please note the laboratory analyzed a matrix spike (MS) on every sample associated with this SDG. This additional measure of quality control was adopted by the laboratory as there is no surrogate standard or internal standard used for this analysis. The MS is being used as a measure of accuracy for the analysis. The sediment sample matrix spikes generally exhibited recoveries below ten percent Resorcinol and 2,3',4-Trihydroxydiphenyl, and SED-103 exhibited recoveries below ten percent for all site specific COCs. The low matrix spike recovery demonstrates a loss of these compounds due to sample matrix interference. The Lab Control Samples (LCS) associated with these samples generally exhibited acceptable recoveries. Compounds exhibiting recovery less than ten percent in the matrix spike that were non-detect in the associated parent sample were qualified as rejected (R).

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices and two times the CRDL for soil matrices.

MS/MSD analysis was performed instead of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPDs.

5. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for the field duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	m-Benzenedisulfonic acid	3100	2600	17.5%
SG-3/ DUP120414	p-Phenolsulfonic acid	160	160	0%
	Benzenesulfonic acid	27 J	20 J	AC
	Resorcinol	440	430	2.3%
	m-Benzenedisulfonic acid	85000	85000	0%
SED-101/ DUP120314	p-Phenolsulfonic acid	7200	7400	2.7%
DOI 120017	Benzenesulfonic acid	850	870	2.3%

AC Acceptable
U Not detected

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. Laboratory Control Sample/Low Laboratory Control Sample (LCS/LLCS) Analysis

The LCS/LLCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LLCS analysis must exhibit a percent recovery between the control limits of 60% and 140%.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
SED-101 SED-102 SED-103 DUP120314	2,3',4-Trihydroxydiphenyl	>UL	NA

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
> tile upper control iiiiii (OL)	Detect	J
a the lower central limit (LL) but > 100/	Non-detect	UJ
< the lower control limit (LL) but > 10%	Detect	J
4109/	Non-detect	R
< 10%	Detect	J

The laboratory analyzed a Low Laboratory Control Sample (LLCS) that was spiked at a concentration at or below the reporting limit. The LLCS recoveries were not evaluated as a measure of accuracy.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Sample results associated with compound that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table.

Sample ID	Compound	Original Analysis	Diluted Analysis	Reported Analysis
	m-Benzenedisulfonic acid		85000	85000 D
SED-101	p-Phenolsulfonic acid		7200	7200 D
	Benzenesulfonic acid		850	850 D
	m-Benzenedisulfonic acid		85000	85000 D
DUP120314	p-Phenolsulfonic acid		7400	7400 D
	Benzenesulfonic acid		870	870 D

Note: In the instance where both the original analysis and the diluted analysis sample results exhibited a concentration greater than and/or less than the calibration linear range of the instrument; the sample result exhibiting the greatest concentration will be reported as the final result.

Sample results associated with compounds exhibiting concentrations greater than the linear range are qualified as documented in the table below when reported as the final reported sample result.

Reported Sample Results	Qualification
Diluted sample result within calibration range	D
Diluted sample result less than the calibration range	DJ
Diluted sample result greater than the calibration range	EDJ
Original sample result greater than the calibration range	EJ

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SULFONIC ACID

Site Specific COCs: LCMS/MS method based on TestAmerica-Burlington's SOP BR-LC-005		orted	ed Perfor		Not Required
on restamenta Banington's Got Bit 20 000	No	Yes	No	Yes	Required
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		Х		Х	
Reporting limits (units)		Х		Х	
Blanks					
A. Method blanks		Х		Х	
B. Equipment blanks		Х		Х	
Laboratory Control Sample (LCS) %R		Х	Х		
Low Laboratory Control Sample (LCS) %R		Х		Х	
Matrix Spike (MS) %R		Х	Х		
Matrix Spike Duplicate (MSD) %R		Х	Х		
MS/MSD Precision (RPD)		Х		Х	
Field/Lab Duplicate (RPD)		Х		Х	
Dilution Factor		Х		Х	
Moisture Content		Х		Х	
Tier III Validation					
Initial calibration %RSD or correlation coefficient		Х		Х	
Continuing calibration %R		Х	Х		
Raw Data		Х		Х	
Transcription/calculation errors present		Х		Х	
Reporting limits adjusted to reflect sample dilutions %RSD = relative standard deviation, %R = percent		Х		Х	

[%]RSD - relative standard deviation, %R - percent recovery, RPD - relative percent difference,

[%]D – difference

FORMALDEHYDE ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Formaldehyde by SW846 8315A	Water	3 days from collection to derivatization and 3 days from derivatization to analysis	Cool to <6 °C
	Soil	14 Days to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All compounds associated with the QA blanks exhibited a concentration less than the MDL, with the exception of the compounds listed in the following table. Sample results associated with QA blank contamination that were greater than the BAL resulted in the removal of the laboratory qualifier (B) of data. Sample results less than the BAL associated with the following sample locations were qualified as listed in the following table.

Sample Locations	Analytes	Sample Result	Qualification
SG-7 SG-5 SG-4 SG-3 DUP120414 SG-8 SW-1 SG-2 SH-1 SG-1 SG-6 SW-2_LANGAN SW-1 LANGAN	Formaldehyde (FB)	Detected sample results <rl and <bal< td=""><td>"UB" at the RL</td></bal<></rl 	"UB" at the RL

RL Reporting limit FB Field Blank

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

A maximum RSD of 20% is allowed or a correlation coefficient greater than 0.99.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (15%).

All calibration standard recoveries were within the control limit.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS/MSD Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
SED-102	Formaldehyde	<10%	<10%

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
> tile upper control limit (OL)	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
< the lower control limit (EE) but > 10 %	Detect	J
< 10%	Non-detect	R
< 10 %	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices and two times the CRDL for soil matrices.

MS/MSD analysis was performed instead of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPDs.

5. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for the field duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SG-3/ DUP120414	Formaldehyde	50 UB	50 UB	AC
SED-101/ DUP120314	Formaldehyde	1100	560	65.1%

AC Acceptable U Not detected

The compound Formaldehyde associated with sample locations SED-101 and DUP120314 exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All analytes associated with the LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR FORMALDEHYDE

Formaldehyde: SW846 8315A		orted		mance ptable	Not Required
	No	Yes	No	Yes	Required
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		Х		Х	
Reporting limits (units)		Х		Х	
Blanks					
A. Method blanks		Х		Х	
B. Equipment blanks		Х	Х		
Laboratory Control Sample (LCS) %R		Х		Х	
Laboratory Control Sample Duplicate (LCSD) %R		Х		Х	
LCS/LCSD Precision (RPD)		Х		Х	
Matrix Spike (MS) %R		Х	Х		
Matrix Spike Duplicate (MSD) %R		Х	Х		
MS/MSD Precision (RPD)		Х		Х	
Field/Lab Duplicate (RPD)		Х	Х		
Dilution Factor		Х		Х	
Moisture Content		Х		Х	
Tier III Validation		•		•	
Initial calibration %RSD or correlation coefficient		Х		Х	
Continuing calibration %R		Х		Х	
Raw Data		Х		Х	
Transcription/calculation errors present		Х		Х	
Reporting limits adjusted to reflect sample dilutions %RSD = relative standard deviation %R = percent		Х		Х	

[%]RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference,

[%]D – difference

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 300.0. Data were reviewed in accordance with USEPA National Functional Guidelines of July 2002 as modified or applicable to the method, using method requirements and professional judgment as criteria for qualification.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

Concentration (C) Qualifiers

- U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
- B The reported value was obtained from a reading less than the contract-required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).

Quantitation (Q) Qualifiers

- E The reported value is estimated due to the presence of interference.
- N Spiked sample recovery is not within control limits.
- * Duplicate analysis is not within control limits.

Validation Qualifiers

- J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
- UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- UB Analyte considered non-detect at the listed value due to associated blank contamination.
- R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict

QC serves to increase confidence in data but any value potentially contains error.

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Sulfate by EDA 200.0	Water	28 days from collection to analysis	Cool to <6 °C.
Sulfate by EPA 300.0	Soil	28 days from collection to analysis	Cool to <6 °C.

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. Therefore, sample results greater than the BAL resulted in the removal of the laboratory qualifier (B). No other qualification of the sample results was required.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 and all initial calibration verification standard recoveries were within control limits.

All calibration standard recoveries were within the control limit.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD analysis exhibited recoveries and RPD within the control limits.

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices and two times the CRDL for soil matrices.

MS/MSD analysis was performed instead of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPDs.

5. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for the field duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SG-3/ DUP120414	Sulfate	82	80	2.5%
SED-101/ DUP120314	Sulfate	1600	1500	6.5%

AC Acceptable

U Not detected

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit a percent recovery between the control limits of 80% and 120%.

All analytes associated with the LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 300.0	Rep	orted	Performance Acceptable		Not Required	
	No	Yes	No	Yes	Required	
Miscellaneous Instrumentation						
Tier II Validation						
Holding times		Х		X		
Reporting limits (units)		Х		Х		
Blanks						
C. Instrument blanks		Х		Х		
D. Method blanks		Х		Х		
E. Equipment blanks		Х		Х		
Laboratory Control Sample (LCS) %R		Х		Х		
Laboratory Control Sample Duplicate (LCSD) %R		Х		Х		
LCS/LCSD Precision (RPD)		Х		Х		
Matrix Spike (MS) %R		Х		Х		
Matrix Spike Duplicate (MSD) %R		Х		Х		
MS/MSD Precision (RPD)		Х		Х		
Field/Lab Duplicate (RPD)		Х		Х		
Dilution Factor		Х		Х		
Moisture Content		Х		Х		
Tier III Validation						
Initial calibration %RSD or correlation coefficient		Х		Х		
Continuing calibration %R		Х		Х		
Raw Data		Х		Х		
Transcription/calculation errors present		Х		Х		
Reporting limits adjusted to reflect sample dilutions		X		X		

[%]RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference, %D – difference

Validation Performed By:	Jeffrey L. Davin
Signature:	Jeffeyd. Dai
Date:	January 13, 2015
Peer Review:	Dennis Capria
Date:	

CHAIN OF CUSTODY/LABORAOTRY QUALIFIER DEFINITIONS/ CORRECTED SAMPLE ANALYSIS DATA SHEETS

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TAL-8210 (0713) Sample Specific Notes: လလ Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) For Lab Use Only: ab Sampling: Job / SDG No.: Walk-in Client: COC No: 180-39575 Chain of Custody Archive for Sisposal by Lab S) Date: Site Contact C BONUSS Lab Contact: VI NOMICA Other: Return to Client X X X X X X X メ × × × メメ X X X X RCRA × × 40V -60/00A-× Perform MS / MSD NPDES are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the ã 0 Q T Hamis Date/Tim WORKING DAYS Matrix 3 3 3 3 3 3 K MO Analysis Turnaround Time 3 Type (C≃Comp, G≃Grab) Sample Regulatory Program: Project Manager: MCUVV TAT if different from Below Ł, P Tel/Fax: 724 742 Sample Time | 12/3/m 1/3/m (722) 75.21 M/8/DI 12/4/14 0955 CALENDAR DAYS 12/3/14/1045 Company: 12/5/m 11/20 0011 History 12/13/14/11/40 0111/8/1210 Custody Seal No.: Poison B 124/14 Sample Date Pittsburgh, PB 15238 Phone: 412.963.7058 Fax: 412.963.2470 5,830 Special Instructions/QC Requirements & Comments: omments Section if the lab is to dispose of the sample. Chus Bonessi しながられば angon Congem Sample Identification Sw-5- Langan Client Contact Address: 604 | Wallare | City/State/Zip: 120xford ossible Hazard Identification Company Name: Arculis Project Name: IndSDL 1 DUP 1203 H) U D 120414 Custody Seals Intact: sed - 103 - 10Z 0 2135g Relinquished by: inquished by: アールの 200 Phone: 77 # O d ä.

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TestAmerica Pittsburgh 301 Alpha Drive

Chain of Custody Record

TestAmerica Laboratories, Inc. 063926

Pittsburgh, PA 15238 Phone: 412,963,7058 Fax: 412,963,2470

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reservation Used: 1= ice, 2= HCl; 3= H2SO4; 4=HN03; 5=NaOH; 6= Other	5=NaOH; 6= Other						02000
ossible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Pleas Comments Section if the lab is to dispose of the sample.	Please List any EPA Waste Codes for the sample in the	sample in the	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	may be assesse	d if samples are retaine	d longer than 1 month)	
Non-Hazard Rammable Skin Initant	Poison B		Return to Client	Disposal by Lab	b Archive for	Months	
special Instructions/QC Requirements & Comments:							
c Custody Seals Intact:	Custody Seal No.:		Cooler Temp (:p,sdo /()	Corr'd:	Therm ID No.:	~
Elinquished by: LALT: Claris Bongses	adıs	Date/Time) 12.4.14 / 1745	Received by U		Manuel	Date/7014: 5/14 930	_
Sejinquished by:	Сотрапу: De	Date/Time:	Received-toy:	0	Cqmpan y :\	Date/Time	-
elinquished by:	Company: De	Date/Time:	Received in Laboratory by:		Company:	Date/Time:	
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TestAmerica Pittsburgh 301 Alpha Brive

Chain of Custody Record

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THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

Pittsburgh, PM 15238

TestAmerica Pittsburgh 301 Alpha Brive

Chain of Custody Record

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TestAmerica Laboratories, Inc.

TAL-8210 (0713) Sample Specific Notes: _{တိ} Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) For Lab Use Only: Walk-in Client: Job / SDG No.: ab Sampling: οţ HOL H 이 <u>ර</u> ව Date/Time: COC No: なって Archive for Site Contact: Chr. 3 BONUSSI Date: 17. 4.14 Company: Disposal by Lab Lab Contact: Jennica Bort-dearrier: Received in Laboratory by: Other: Return to Client W/5M 80928 10/019->< RCRA <u>メ</u> Filtered Sample (Y/N)
Perform MS/MSD (Y/N) NPDES Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. Matrix Cont Hamish Date/Time: Date/Time: ☐ WORKING DAYS Date/Tin B MQ [Analysis Turnaround Time E SS द्ध Sample Type (C=Comp, G=Grab) Regulatory Program: TAT if different from Below Project Manager: MONN 2 days TellFax: 724 742 Sample Time 120 MHZ CALENDAR DAYS 0021 11/11/12 0011 m/h/21 Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other 12/4/14 -Custody Seal No. Poison B Sample Date Company: Company: Pittsburgh, PA 15238 Phone: 412,963,7058 Fax: 412,963,2470 Ext Surbaci Special Instructions/QC Requirements & Comments: Project Name: INDSPEC, Petrolla Sample Identification Client Contact Address: 6041 Wallace Company Name: Proudlis Possible Hazard Identification 70314 City/State/Zip: (UCX FC) 701-0 Custody Seals Intact:
Relinquished by: Relinquished by:
0
Relinquished by: Phone: 724 Non-Hazard # O d Site: 1918 o#

TAI -0018 (1008)

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TestA	Chain TestAmerica Laboratory location:	Chain of Custody Record リアコストロハ	250	lestAmerica
Client Contact	MG	Trpdes RCRA Other		Tect America Laboratories Inc
Company Name: ArCach 15	Cleat Project Manager: Man'L Hamish	s Bonessi	Lab Contact: / Kathrine Kelly	COC No:
GOUI Wallace Ad Ext soulesdo	7th 742 9180		-	2 of 2 cocs
5010	Email: Mark. Hanish @		Analyses	For late sees could
Phone: 742 7180	77	TAT if different from below	5/2/5	
Project Name: IndSpcc - Petalic PA	arrier:	P. T.	> ₹	- Signature (m.)
Project Number:		☐ 2 days ☐ [X] X] ☐ ☐ 1 day	νίν	The second secon
PO#	11.11	Contained a Presentained of the Contained 3		
Sample Identification	Sample Date Sample Time Adveous Sediment	Combine Shipping Ship	คร	Sample Specific Notes / Special Instructions:
8-18	12/4/14 1045 X	9 X	X	
Sw-1	12/4/14 1055 x	め 又	メ	
7-98	12/4/14 1115 X	9 7	X	
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56-1	यथ प्रमाप्त ×	ý ×	X	
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	124/4/320 7	メ	Х	
FB120414 U	र ०५५। मानिय	× (6	メ	
Possible Hazard Identification Vol. Hazard Flanmable Skin	Skin britant Poison B Unknown	Sample Disposal (A fee may be assessed if samples are retrained longer than 1 month)		Months
эрески пъктисовня де керштевня:		,		
Chris Bonessi	Company: Date/Time:	1745 Recorded by:	Company:	Date/Time: 14/5 14/4/5
		Received by:	Company:	Date/Time:
Relinquished by:	Company: Date/Time:	Received in Laboratory by:	Сотрапу:	Date/Time:

Test America Pittsburgh

Pittsburgh, PG 15238 Phone: 412.963.7058 Fax: 412.963.2470

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING TestAmerica Laboratories, Inc.

063926

	Regulatory Program: Dw	W NPDES	RCRA Other:			TAL-8210 (0713)
Client Contact	Project Manager: WCWV #	Hanis L	Site Contact C $Boness$	Bomess, Date:	11-11-23	COC No:
company Name: Arcaelis	2		Lab Contact: VP JOMICA	Son Carrier:	FPdEX	cocs 2 of 1
ddress: 6041 wall are fix Ext 5, 830	Analysis Turnaround Time	ime	4			Sampler:
DXTOG PR INCA	☐ CALENDAR DAYS ☐ WORKING DAYS	NG DAYS	O/			For Lab Use Only:
180 180	f from Bel		(N			Walk-in Client:
ax 724 742 9189	2 weeks					Lab Sampling:
770	1 week	e-				
ite:	2 days Tanga	Z		7.01		Job / SDG No.:
#D	1 day	,				
	Sample Sample Type		Der Sied S			·
Sample Identification	Time (C=Comp,	# of Matrix Cont.	64 8.5 8.5			Sample Specific Notes:
Sw-5- Langan	143/14 1045 (g	0 m	XXX			
Sed-103	17/3/14 1100 C S	See 3	×			
55w-4- Langen	9 0111 11/5/21	9 0	XXX			
, 201 - 102	1120 C	Seil 9	XXX X 人			
5cu-3- Cangam	9 0411 m/s/z1	3,	× × ×			
2 Sed - 101	1200 C	<u>इ</u>	× ×			
F D130120314	J	861 3	××			
(2-1)	9 (22)	9 0	XXX			
5/9-3	19/14/1235 G	3	XXX			
56-4	1	3	XXXX		180-39575	
Sf -3	0201	<u>و</u> د	×××		Custody	f Custody
Dup 120414		<i>∞</i>	XXX			
reservation Used: 1= lce, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other	5=NaOH; 6= Officer					
ossible Hazard Identification: ue any samples from a listed EPA Hazardous Waste? Pleas comments Section if the lab is to dispose of the sample.	Please List any EPA Waste Codes for th	les for the sample in the	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	nay be assessec	l if samples are retaine	d longer than 1 month)
Non-Hazard Hammable Skin Imitant	Poison B		Return to Client	Disposal by Lab	D Archive for	Months
pecial Instructions/QC Requirements & Comments:				<	-	
Custody Seals Intact: Tes No	Custody Seal No.:		(C){Ops'd:	Corr'd:	Therm ID No.:
elinquished by:	Company:	Date/Time; 12.4.14 /745	Received by 1		A Mary	Date/77me: 5 14 930
	ny:	Date/Tine:	Received by:		Cdmpany	Date/Time:
Alinquished by:	Company:	Date/Time:	Received in Laboratory by:		Company:	Date/Time:
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TestAmerica Pittsburgh

Chain of Custody Record

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063925

THE LEADER IN ENVIRONMENTAL TESTING TESTANGES INC.

TAL-8210 (0713) Sample Specific Notes: *S*000 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) For Lab Use Only: Walk-in Client: Job / SDG No.: ₽ -ab Sampling: Date/Time: COC No: Archive for 1. Date: 94 12.4 Company: Spisposal by Lab Site Contact: (M) Schuzz | Date: (Lab Contact: Venchuz | Borth Parrier: Received in Laboratory by: Site Contact: (JM/S Other: Return to Client ××× X X X X X X メメメ × × × × Perform MS / MSD Filtered Sample (Y / N) NPDES vre any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the 4 Hanson O Date/Time: 17.4.14 Date/Time Date/Time ☐ WORKING DAYS 1 week Stando Matrix .3 3 3 3 3 3 DW **Analysis Turnaround Time** 3 Type (C=Comp, G=Grab) Sample Regulatory Program: TAT if different from Below D Project Manager: ₩QM TellFax: 714742 Sample Time 12-4-14 [140 12-4-19 1055 7.4.14 H40 124.14 1045 12-4-14 1300 CALENDAR DAYS 12-4-14 1130 0281 H1.421 12.4.14 1115 12-4-14 1310 reservation Used: 1=1ce; 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other Company:
Acads
Company: Poison B Sample Date Company: Pittsburgh PA 15238 Phone: 412,963,7058 Fax: 412,963,2470 Sureza Chris Bongssi omments Section if the lab is to dispose of the sample. Special Instructions/QC Requirements & Comments: - Petrolic Conscions Sample Identification Client Contact City/State/Zip: [110x ford / Company Name: Arcadus ossible Hazard Identification: Address: 6041 Wallace Project Name: Inds ple Trip Blank FB120414 Sustody Seals Intact: 5 Relinquished by: ١ Non-Hazard 3 belginbug 2 # O d Site:

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Chain of Custody Record

Therm ID No .	Corrd.	ال العطن .(ن)، uu			Custody Sool No.	Pringhody Spale Intact:
			e			Special instructions/QC Requirements & Comments:
Months	Archive for	ADisposal by Lab	Return to Client	Unknown	☐ Poison B	Non-Hazard Hammable Skin Imtant
		.*		odes for the sample in the	se List any EPA waste Co	Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
d longer than 1 month)	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month	fee may be assessed	Sample Disposal (A			Possible Hazard Identification:
					5=NaOH; 6= Other	Preservation Used: 1=lce, 2=HCt; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other
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1 - 0 - 20			<u>Х</u>	C 88 3	0021 11/1/121	101 - 101
Hold			Y X X	bed b	QZ11 M/M/21	Sed - 102
Høld			× 2	6 2 3	0011 m/h/zi	Sec. 103
Sample Specific Notes:			Perform M (0,0/2)	Sample 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Sample Sample Date Time	Sample Identification
Job / SDG No.:) AMARIAA	2 days	
Lab Sampling:					2 we	12 742 91 Same - 142 91
For Lab Use Only:			οΛ ·	WORKING DAYS	CALENDAR DAYS	City/State/Zip: Wexford, Ver Sould
Sampler:		ı	₩ -	ind Time		Address: GOUI Wally Ce. Pol Ext Surezon
of COCs	7000×	Racha Carrier:	13	9.40	TellFax: 724 742	
COC No:	4.14	BOWLSSI Date: 1	4.02.53	is ofamish	Project Manager: M.D.	Client Contact
TAL-8210 (0713)	-		☐ RCRA ☐ Other:	am: Dw NPDES	Regulatory Program:	
THE LEADER IN ENVIRONMENTAL TESTING					et:	Pittsburgh, PA 15238

Date/Time:

Company:

Received in Laboratory by:

Date/Time:

Company:

Relinquished by:

elinquished by:

12-4-14/ Date/Time:

Company:

Date/Time:

Definitions/Glossary

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
В	Compound was found in the blank and sample.
*	LCS or LCSD exceeds the control limits
F1	MS and/or MSD Recovery exceeds the control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery exceeds the control limits
F2	MS/MSD RPD exceeds control limits
В	Compound was found in the blank and sample.
1.0140	

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery exceeds the control limits
*	LCS or LCSD exceeds the control limits
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F2	MS/MSD RPD exceeds control limits
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-5_LANGAN

Lab Sample ID: 180-39575-1 Date Collected: 12/03/14 10:45

Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 12:44	
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 12:44	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 12:44	
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 12:44	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 12:44	•
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 12:44	
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 12:44	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 12:44	
1,2-Dichlorobenzene	0.63	J	1.0	0.15	ug/L			12/16/14 12:44	
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 12:44	
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 12:44	
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 12:44	
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 12:44	
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 12:44	
2-Hexanone	ND		5.0	0.16				12/16/14 12:44	
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53				12/16/14 12:44	,
Acetone	2.5	J	5.0		ug/L			12/16/14 12:44	1
Benzene	ND		1.0	0.11				12/16/14 12:44	
Bromoform	ND		1.0	0.19				12/16/14 12:44	
Bromomethane	ND		1.0	0.31				12/16/14 12:44	
Carbon disulfide	ND		1.0	0.21				12/16/14 12:44	
Carbon tetrachloride	ND		1.0	0.14				12/16/14 12:44	
Chlorobenzene	0.34	J	1.0	0.14				12/16/14 12:44	
Chlorodibromomethane	ND		1.0		ug/L			12/16/14 12:44	
Chloroethane	ND		1.0	0.21				12/16/14 12:44	
Chloroform	ND		1.0	0.17				12/16/14 12:44	
Chloromethane	ND		1.0	0.28				12/16/14 12:44	
cis-1,2-Dichloroethene	ND		1.0	0.24				12/16/14 12:44	
cis-1,3-Dichloropropene	ND		1.0	0.19				12/16/14 12:44	
Cyclohexane	ND		1.0	0.25				12/16/14 12:44	
Dichlorobromomethane	ND		1.0	0.13				12/16/14 12:44	
Dichlorodifluoromethane	ND		1.0	0.19				12/16/14 12:44	
Ethyl ether	8.6		1.0	0.082				12/16/14 12:44	
Ethylbenzene	ND		1.0	0.23				12/16/14 12:44	
1,2-Dibromoethane	ND		1.0	0.18				12/16/14 12:44	
sopropylbenzene	ND		1.0	0.16				12/16/14 12:44	
Methyl acetate	ND		1.0	0.14				12/16/14 12:44	
Methyl tert-butyl ether	ND		1.0	0.18				12/16/14 12:44	
Methylcyclohexane	ND		1.0	0.26	-			12/16/14 12:44	
Methylene Chloride	ND		1.0	0.13				12/16/14 12:44	,
Styrene	ND		1.0	0.097				12/16/14 12:44	
Tetrachloroethene	ND		1.0	0.15	•			12/16/14 12:44	
Toluene	ND		1.0	0.15				12/16/14 12:44	
trans-1,2-Dichloroethene	ND ND		1.0	0.13				12/16/14 12:44	
trans-1,3-Dichloropropene	ND ND		1.0	0.17	-			12/16/14 12:44	
Trichloroethene	ND		1.0	0.15				12/16/14 12:44	
Trichloroethene	ND ND		1.0	0.14				12/16/14 12:44	
Vinyl chloride	ND ND		1.0		ug/L ug/L			12/16/14 12:44	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-5_LANGAN

Lab Sample ID: 180-39575-1 Date Collected: 12/03/14 10:45

Matrix: Water

Dil Fac

Analyzed

Date	Received:	12/05/14	18:40

Analyte

Surrogate	%Recovery Q	Qualifier Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102	64 - 135		12/16/14 12:44	1
4-Bromofluorobenzene (Surr)	102	70 - 118		12/16/14 12:44	1
Dibromofluoromethane (Surr)	107	70 - 128		12/16/14 12:44	1
Toluene-d8 (Surr)	98	71 - 118		12/16/14 12:44	1

MDL Unit

Prepared

Method: 8270C LL - Semi	iivolatile Organic Compo	ounds by GCMS - Low Levels

Result Qualifier

Phenol	ND	0.93 0.051 u	g/L 12/09/14 08:31	12/10/14 12:21	1
Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	79	30 - 150	12/09/14 08:31	12/10/14 12:21	1
2-Fluorobiphenyl	63	30 - 150	12/09/14 08:31	12/10/14 12:21	1
2-Fluorophenol	55	30 - 150	12/09/14 08:31	12/10/14 12:21	1
Nitrobenzene-d5	62	30 - 150	12/09/14 08:31	12/10/14 12:21	1
Phenol-d5	55	30 - 150	12/09/14 08:31	12/10/14 12:21	1
Terphenyl-d14	62	10 - 150	12/09/14 08:31	12/10/14 12:21	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	84	1.0	0.21 mg/L			12/20/14 20:20	1

Method: 8315A - Carbonyl Compounds (HPLC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	ND		50	5.0	ug/L		12/05/14 10:51	12/08/14 13:17	1

Method: In-House - Sulfonic Acids by LCMS/MS

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	890	50	18	ug/L		12/09/14 15:47	12/10/14 13:27	10
p-Phenolsulfonic acid	97	50	8.4	ug/L		12/09/14 15:47	12/10/14 13:27	10
Benzenesulfonic acid	ND	50	7.0	ug/L		12/09/14 15:47	12/10/14 13:27	10
Resorcinol	ND	50	5.9	ug/L		12/09/14 15:47	12/10/14 13:27	10
2,3',4-Trihydroxydiphenyl	ND	50	16	ug/L		12/09/14 15:47	12/10/14 13:27	10

Client Sample ID: SED-103

Lab Sample ID: 180-39575-2 Date Collected: 12/03/14 11:00 **Matrix: Solid**

Date Received: 12/05/14 18:40 Percent Solids: 85.7

Analyte	ompounds (mpounds (GC/MS)							
nalyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Trichloroethane	ND		5.8	0.57	ug/Kg	₩	12/10/14 05:05	12/10/14 09:22	1
1,2,2-Tetrachloroethane	ND		5.8	0.84	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
1,2-Trichloro-1,2,2-trifluoroethane	ND		5.8	1.2	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
1,2-Trichloroethane	ND		5.8	0.97	ug/Kg	\$	12/10/14 05:05	12/10/14 09:22	1
1-Dichloroethane	ND		5.8	0.67	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
1-Dichloroethene	ND		5.8	0.99	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
2,4-Trichlorobenzene	ND		5.8	1.0	ug/Kg	\$	12/10/14 05:05	12/10/14 09:22	1
2-Dibromo-3-Chloropropane	ND		5.8	0.87	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
2-Dichlorobenzene	ND		5.8	0.93	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
2-Dichloroethane	ND		5.8	0.72	ug/Kg	\$	12/10/14 05:05	12/10/14 09:22	1
2-Dichloropropane	ND		5.8	0.63	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
3-Dichlorobenzene	ND		5.8	0.77	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
	•	nalyte Result 1,1-Trichloroethane ND 1,2,2-Tetrachloroethane ND 1,2-Trichloro-1,2,2-trifluoroethane ND 1,2-Trichloroethane ND 1-Dichloroethane ND 1-Dichloroethene ND 2,4-Trichlorobenzene ND 2-Dibromo-3-Chloropropane ND 2-Dichlorobenzene ND 2-Dichloroethane ND 2-Dichloropropane ND 2-Dichloropropane ND	1,1-Trichloroethane ND 1,2,2-Tetrachloroethane ND 1,2-Trichloro-1,2,2-trifluoroethane ND 1,2-Trichloroethane ND 1,2-Trichloroethane ND 1-Dichloroethane ND 2-Dichloroethene ND 2-Dibromo-3-Chloropropane ND 2-Dichlorobenzene ND 2-Dichloroethane ND 2-Dichloroethane ND	nalyte Result Qualifier RL 1,1-Trichloroethane ND 5.8 1,2,2-Tetrachloroethane ND 5.8 1,2-Trichloro-1,2,2-trifluoroethane ND 5.8 1,2-Trichloroethane ND 5.8 1-Dichloroethane ND 5.8 1-Dichloroethene ND 5.8 2,4-Trichlorobenzene ND 5.8 2-Dibromo-3-Chloropropane ND 5.8 2-Dichlorobenzene ND 5.8 2-Dichloroethane ND 5.8 2-Dichloropropane ND 5.8	nalyte Result Qualifier RL MDL 1,1-Trichloroethane ND 5.8 0.57 1,2,2-Tetrachloroethane ND 5.8 0.84 1,2-Trichloro-1,2,2-trifluoroethane ND 5.8 1.2 1,2-Trichloroethane ND 5.8 0.97 1-Dichloroethane ND 5.8 0.67 1-Dichloroethene ND 5.8 0.99 2,4-Trichlorobenzene ND 5.8 0.87 2-Dibromo-3-Chloropropane ND 5.8 0.87 2-Dichlorobenzene ND 5.8 0.93 2-Dichloroethane ND 5.8 0.72 2-Dichloropropane ND 5.8 0.63	nalyte Result Qualifier RL MDL Unit 1,1-Trichloroethane ND 5.8 0.57 ug/Kg 1,2,2-Tetrachloroethane ND 5.8 0.84 ug/Kg 1,2-Trichloro-1,2,2-trifluoroethane ND 5.8 0.97 ug/Kg 1,2-Trichloroethane ND 5.8 0.97 ug/Kg 1-Dichloroethane ND 5.8 0.67 ug/Kg 1-Dichloroethene ND 5.8 0.99 ug/Kg 2,4-Trichlorobenzene ND 5.8 1.0 ug/Kg 2-Dibromo-3-Chloropropane ND 5.8 0.87 ug/Kg 2-Dichlorobenzene ND 5.8 0.93 ug/Kg 2-Dichloropropane ND 5.8 0.72 ug/Kg 2-Dichloropropane ND 5.8 0.63 ug/Kg	nalyte Result Qualifier RL MDL Unit D 1,1-Trichloroethane ND 5.8 0.57 ug/Kg 3 1,2,2-Tetrachloroethane ND 5.8 0.84 ug/Kg 3 1,2-Trichloro-1,2,2-trifluoroethane ND 5.8 0.97 ug/Kg 3 1,2-Trichloroethane ND 5.8 0.97 ug/Kg 3 1-Dichloroethane ND 5.8 0.67 ug/Kg 3 1-Dichloroethene ND 5.8 0.99 ug/Kg 3 2,4-Trichlorobenzene ND 5.8 1.0 ug/Kg 3 2-Dibromo-3-Chloropropane ND 5.8 0.87 ug/Kg 3 2-Dichlorobenzene ND 5.8 0.93 ug/Kg 3 2-Dichloropropane ND 5.8 0.72 ug/Kg 3 2-Dichloropropane ND 5.8 0.63 ug/Kg 3	nalyte Result Qualifier RL MDL Unit D Prepared 1,1-Trichloroethane ND 5.8 0.57 ug/Kg 12/10/14 05:05 1,2,2-Tetrachloroethane ND 5.8 0.84 ug/Kg 12/10/14 05:05 1,2-Trichloro-1,2,2-trifluoroethane ND 5.8 0.97 ug/Kg 12/10/14 05:05 1,2-Trichloroethane ND 5.8 0.97 ug/Kg 12/10/14 05:05 1-Dichloroethane ND 5.8 0.67 ug/Kg 12/10/14 05:05 1-Dichloroethene ND 5.8 0.99 ug/Kg 12/10/14 05:05 2,4-Trichlorobenzene ND 5.8 1.0 ug/Kg 12/10/14 05:05 2-Dibromo-3-Chloropropane ND 5.8 0.87 ug/Kg 12/10/14 05:05 2-Dichlorobenzene ND 5.8 0.93 ug/Kg 12/10/14 05:05 2-Dichloropropane ND 5.8 0.72 ug/Kg 12/10/14 05:05 2-Dichloropropane ND 5.8	Malyte Result (1,1-Trichloroethane) Qualifier RL MDL (1,1-Trichloroethane) Unit D (1,1-Trichloroethane) Analyzed 1,1,2-Trichloroethane ND 5.8 0.57 ug/Kg 12/10/14 05:05 12/10/14 09:22 1,2,2-Tetrachloroethane ND 5.8 0.84 ug/Kg 12/10/14 05:05 12/10/14 09:22 1,2-Trichloroethane ND 5.8 0.97 ug/Kg 12/10/14 05:05 12/10/14 09:22 1-Dichloroethane ND 5.8 0.67 ug/Kg 12/10/14 05:05 12/10/14 09:22 1-Dichloroethane ND 5.8 0.67 ug/Kg 12/10/14 05:05 12/10/14 09:22 1-Dichloroethane ND 5.8 0.99 ug/Kg 12/10/14 05:05 12/10/14 09:22 2-Lichlorobenzene ND 5.8 0.99 ug/Kg 12/10/14 05:05 12/10/14 09:22 2-Dichlorobenzene ND 5.8 0.87 ug/Kg 12/10/14 05:05 12/10/14 09:22 2-Dichlorobenzene ND 5.8 0.93 ug/Kg 12/10/14 05:05 12/10/14 09:22 2-Dichloropropane ND 5.8

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-103 Lab Sample ID: 180-39575-2

 Date Collected: 12/03/14 11:00
 Matrix: Solid

 Date Received: 12/05/14 18:40
 Percent Solids: 85.7

Method: 8260B - Volatile Organic C Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		5.8	0.74	ug/Kg	-	12/10/14 05:05	12/10/14 09:22	
2-Butanone (MEK)	ND		5.8	1.0	ug/Kg	Φ.	12/10/14 05:05	12/10/14 09:22	1
2-Hexanone	ND		5.8	0.81	ug/Kg	⇔	12/10/14 05:05	12/10/14 09:22	1
4-Methyl-2-pentanone (MIBK)	ND		5.8	0.76	ug/Kg		12/10/14 05:05	12/10/14 09:22	1
Acetone	ND		23	5.8	ug/Kg	⇔	12/10/14 05:05	12/10/14 09:22	1
Benzene	ND		5.8	0.79	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
Bromoform	ND		5.8	0.52	ug/Kg		12/10/14 05:05	12/10/14 09:22	1
Bromomethane	ND		5.8	0.86	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
Carbon disulfide	1.4	J	5.8	0.60	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
Carbon tetrachloride	ND		5.8		ug/Kg		12/10/14 05:05	12/10/14 09:22	1
Chlorobenzene	ND		5.8	0.88	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
Chlorodibromomethane	ND		5.8	0.83	ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
Chloroethane	ND		5.8	1.8	ug/Kg		12/10/14 05:05	12/10/14 09:22	1
Chloroform	ND		5.8	0.68	ug/Kg	₩	12/10/14 05:05	12/10/14 09:22	1
Chloromethane	ND		5.8	0.99	ug/Kg	\$	12/10/14 05:05	12/10/14 09:22	1
cis-1,2-Dichloroethene	ND		5.8	0.82	ug/Kg		12/10/14 05:05	12/10/14 09:22	· · · · · · · · · · · · · · · · · · ·
cis-1,3-Dichloropropene	ND		5.8	0.79	ug/Kg	₩	12/10/14 05:05	12/10/14 09:22	1
Cyclohexane	ND		5.8	0.43	ug/Kg	₩	12/10/14 05:05	12/10/14 09:22	1
Dichlorobromomethane	ND		5.8	0.66	ug/Kg		12/10/14 05:05	12/10/14 09:22	· · · · · · · · · · · · · · · · · · ·
Dichlorodifluoromethane	ND		5.8	0.78	ug/Kg	₩	12/10/14 05:05	12/10/14 09:22	1
	8.1		5.8	0.68	ug/Kg ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
Ethyl ether Ethylbenzene	ND		5.8	0.75	ug/Kg		12/10/14 05:05	12/10/14 09:22	· · · · · · · · · · · · · · · · · · ·
1,2-Dibromoethane	ND		5.8	1.0	ug/Kg ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
Isopropylbenzene	ND		5.8	0.79	ug/Kg ug/Kg	₽	12/10/14 05:05	12/10/14 09:22	1
	ND ND			1.1		· · · · · · · · · · · · · · · · · · ·	12/10/14 05:05	12/10/14 09:22	
Methyl text but I other	ND ND	J	5.8		ug/Kg				
Methyl tert-butyl ether			5.8	0.87	ug/Kg	~ ⇔	12/10/14 05:05	12/10/14 09:22	1
Methylcyclohexane	ND	™ UB	5.8	0.85	ug/Kg		12/10/14 05:05	12/10/14 09:22	1
Methylene Chloride	6.1 ND	B UB	5.8	0.78	ug/Kg	* \$	12/10/14 05:05	12/10/14 09:22	1
Styrene	ND		5.8		ug/Kg		12/10/14 05:05	12/10/14 09:22	1
Tetrachloroethene	ND		5.8	0.79	ug/Kg	<u></u>	12/10/14 05:05	12/10/14 09:22	
Toluene	ND		5.8		ug/Kg	#	12/10/14 05:05	12/10/14 09:22	1
trans-1,2-Dichloroethene	ND		5.8	0.70	ug/Kg		12/10/14 05:05	12/10/14 09:22	1
trans-1,3-Dichloropropene	ND	* J	5.8	0.70	ug/Kg	· · · · · 🌣	12/10/14 05:05	12/10/14 09:22	1
Trichloroethene	ND		5.8		ug/Kg	#	12/10/14 05:05	12/10/14 09:22	1
Trichlorofluoromethane	ND		5.8		ug/Kg	₩	12/10/14 05:05	12/10/14 09:22	1
Vinyl chloride	ND		5.8	0.55	ug/Kg	.⇔	12/10/14 05:05	12/10/14 09:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	76		52 - 124				12/10/14 05:05	12/10/14 09:22	1
4-Bromofluorobenzene (Surr)	87		63 - 120				12/10/14 05:05	12/10/14 09:22	1
Dibromofluoromethane (Surr)	91		68 - 121				12/10/14 05:05	12/10/14 09:22	1
Toluene-d8 (Surr)	102		72 - 127				12/10/14 05:05	12/10/14 09:22	1
Method: 300.0 - Anions, Ion Chrom	atography -	Soluble							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	290			2.4	mg/Kg	-		12/24/14 11:28	1
Method: 8315A - Carbonyl Compo	unds (HPLC)								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde					ug/Kg				

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-103 Lab Sample ID: 180-39575-2

Date Collected: 12/03/14 11:00 Matrix: Solid

Date Received: 12/05/14 18:40

Method: In-House - Sulfonic Acids	by LCMS/MS	}							
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	ND	R	20	20	ug/Kg		12/08/14 15:50	12/09/14 23:29	2
p-Phenolsulfonic acid	ND	R	20	20	ug/Kg		12/08/14 15:50	12/09/14 23:29	2
Benzenesulfonic acid	ND-	→ R	20	20	ug/Kg		12/08/14 15:50	12/09/14 23:29	2
Resorcinol	₩Đ	R	400	400	ug/Kg		12/08/14 15:50	12/09/14 20:23	40
2,3',4-Trihydroxydiphenyl	ND	→ R	1200	1200	ug/Kg		12/08/14 15:50	12/09/14 20:23	40

Client Sample ID: SW-4_LANGAN Lab Sample ID: 180-39575-3

Date Collected: 12/03/14 11:10 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 15:56	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 15:56	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 15:56	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 15:56	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 15:56	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 15:56	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 15:56	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 15:56	1
1,2-Dichlorobenzene	0.75	J	1.0	0.15	ug/L			12/16/14 15:56	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 15:56	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 15:56	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 15:56	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 15:56	1
2-Butanone (MEK)	ND		5.0		ug/L			12/16/14 15:56	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 15:56	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 15:56	1
Acetone	2.6	J	5.0		ug/L			12/16/14 15:56	1
Benzene	ND		1.0		ug/L			12/16/14 15:56	1
Bromoform	ND		1.0		ug/L			12/16/14 15:56	1
Bromomethane	ND		1.0		ug/L			12/16/14 15:56	1
Carbon disulfide	ND		1.0		ug/L			12/16/14 15:56	1
Carbon tetrachloride	ND		1.0	0.14				12/16/14 15:56	1
Chlorobenzene	0.45	J	1.0		ug/L			12/16/14 15:56	1
Chlorodibromomethane	ND		1.0		ug/L			12/16/14 15:56	1
Chloroethane	ND		1.0		ug/L			12/16/14 15:56	1
Chloroform	ND		1.0		ug/L			12/16/14 15:56	1
Chloromethane	ND		1.0		ug/L			12/16/14 15:56	1
cis-1,2-Dichloroethene	ND		1.0	0.24				12/16/14 15:56	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			12/16/14 15:56	1
Cyclohexane	ND		1.0		ug/L			12/16/14 15:56	1
Dichlorobromomethane	ND		1.0		ug/L			12/16/14 15:56	1
Dichlorodifluoromethane	ND		1.0		ug/L			12/16/14 15:56	1
Ethyl ether	8.1		1.0	0.082	_			12/16/14 15:56	1
Ethylbenzene	ND		1.0		ug/L			12/16/14 15:56	1
1,2-Dibromoethane	ND		1.0	0.18				12/16/14 15:56	1
Isopropylbenzene	ND		1.0		ug/L			12/16/14 15:56	1
Methyl acetate	ND		1.0		ug/L			12/16/14 15:56	1
Methyl tert-butyl ether	ND		1.0		ug/L			12/16/14 15:56	1

TestAmerica Pittsburgh

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-4_LANGAN

Lab Sample ID: 180-39575-3

Date Collected: 12/03/14 11:10 **Matrix: Water** Date Received: 12/05/14 18:40

Method: 8260C - Volatile Orga Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 15:56	
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 15:56	
Styrene	ND		1.0	0.097	ug/L			12/16/14 15:56	
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 15:56	
Toluene	ND		1.0	0.15	ug/L			12/16/14 15:56	
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 15:56	
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 15:56	
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 15:56	
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 15:56	
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 15:56	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	103		64 - 135					12/16/14 15:56	
4-Bromofluorobenzene (Surr)	104		70 - 118					12/16/14 15:56	
Dibromofluoromethane (Surr)	102		70 - 128					12/16/14 15:56	
Toluene-d8 (Surr)	97		71 - 118					12/16/14 15:56	
Analyte Phenol	ND		RL	0.051	ug/L		12/09/14 08:31	12/10/14 12:50	
	ND			0.051	ug/L		12/09/14 08:31	12/10/14 12:50	
Phenol		Qualifiar	0.93	0.051	ug/L				
Phenol Surrogate	%Recovery	Qualifier	0.93	0.051	ug/L		Prepared	Analyzed	Dil Fa
Phenol Surrogate 2,4,6-Tribromophenol	%Recovery	Qualifier	0.93 Limits 30 - 150	0.051	ug/L		Prepared 12/09/14 08:31	Analyzed 12/10/14 12:50	Dil Fac
Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl	%Recovery 83 73	Qualifier	0.93 Limits 30 - 150 30 - 150	0.051	ug/L		Prepared 12/09/14 08:31 12/09/14 08:31	Analyzed 12/10/14 12:50 12/10/14 12:50	Dil Fa
Phenol Surrogate 2,4,6-Tribromophenol	%Recovery	Qualifier	0.93 Limits 30 - 150 30 - 150 30 - 150	0.051	ug/L		Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50	Dil Fac
Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	%Recovery 83 73 62	Qualifier	0.93 Limits 30 - 150 30 - 150	0.051	ug/L		Prepared 12/09/14 08:31 12/09/14 08:31	Analyzed 12/10/14 12:50 12/10/14 12:50	Dil Fa
Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5	%Recovery 83 73 62 70	Qualifier	0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150	0.051	ug/L		Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14	%Recovery 83 73 62 70 64 73	Qualifier	0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150	0.051	ug/L		Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50	Dil Fa
Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5	%Recovery 83 73 62 70 64 73	Qualifier Qualifier	0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150	0.051			Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50	Dil Fac
Phenol Surrogate 2.4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Cl	%Recovery 83 73 62 70 64 73		0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150			<u>D</u>	Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50	Dil Fac
Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Cl Analyte	### ### #### #####################		0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	MDL	Unit	<u>D</u>	Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50	Dil Fac
Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Cl Analyte Sulfate	### ### ##############################		0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	MDL	Unit mg/L	D	Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50	Dil Fac
Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Cl Analyte Sulfate Method: 8315A - Carbonyl Cor	### ### ##############################	Qualifier	0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0	MDL 0.21	Unit mg/L		Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 Analyzed 12/20/14 20:55	Dil Fa
Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion CI Analyte Sulfate Method: 8315A - Carbonyl Cor Analyte	%Recovery 83 73 62 70 64 73 Result 83 MD Result ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND	Qualifier	0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0	MDL 0.21	Unit mg/L		Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 Prepared Prepared	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 Analyzed 12/20/14 20:55	Dil Fac
Phenol Surrogate 2.4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Cl Analyte Sulfate Method: 8315A - Carbonyl Cor Analyte Formaldehyde Method: In-House - Sulfonic A		Qualifier	0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0	MDL 0.21	Unit mg/L Unit ug/L		Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 Prepared Prepared	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 Analyzed 12/20/14 20:55	Dil Fa
Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Cl Analyte Sulfate Method: 8315A - Carbonyl Cor Analyte Formaldehyde Method: In-House - Sulfonic A Analyte		Qualifier Qualifier	0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0	MDL 0.21 MDL 5.0	Unit mg/L Unit ug/L	<u>D</u>	Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 Prepared Prepared 12/05/14 10:51	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 Analyzed 12/20/14 20:55 Analyzed 12/08/14 13:29	Dil Fac
Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Cl Analyte Sulfate Method: 8315A - Carbonyl Cor Analyte Formaldehyde Method: In-House - Sulfonic A Analyte m-Benzenedisulfonic acid		Qualifier Qualifier	0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 50 RL	MDL 0.21 MDL 5.0	Unit mg/L Unit ug/L Unit	<u>D</u>	Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 Prepared Prepared 12/05/14 10:51 Prepared	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 Analyzed 12/20/14 20:55 Analyzed 12/08/14 13:29 Analyzed	Dil Fac
Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion CI Analyte Sulfate Method: 8315A - Carbonyl Cor Analyte Formaldehyde		Qualifier Qualifier Qualifier	0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 50 RL 50	MDL 0.21 MDL 5.0 MDL 18 8.4	Unit mg/L Unit ug/L Unit ug/L	<u>D</u>	Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 Prepared Prepared 12/05/14 10:51 Prepared 12/09/14 15:47	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 Analyzed 12/20/14 20:55 Analyzed 12/08/14 13:29 Analyzed 12/10/14 13:59	Dil Fac
Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Cl Analyte Sulfate Method: 8315A - Carbonyl Cor Analyte Formaldehyde Method: In-House - Sulfonic A Analyte m-Benzenedisulfonic acid p-Phenolsulfonic acid		Qualifier Qualifier Qualifier	0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 50 RL 50	MDL 0.21 MDL 5.0 MDL 18 8.4 7.0	Unit mg/L Unit ug/L Unit ug/L	<u>D</u>	Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 Prepared 12/05/14 10:51 Prepared 12/09/14 15:47 12/09/14 15:47	Analyzed 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 12/10/14 12:50 Analyzed 12/20/14 20:55 Analyzed 12/08/14 13:29 Analyzed 12/10/14 13:59 12/10/14 13:59	Dil Fac

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-102 Lab Sample ID: 180-39575-4

 Date Collected: 12/03/14 11:20
 Matrix: Solid

 Date Received: 12/05/14 18:40
 Percent Solids: 73.3

Method: 8260B - Volatile Organic (•	(GC/MS) Qualifier	Di	MD	l Init	_	Dremers -	Apple	Dil E
Analyte		Qualifier	RL	MDL		— D ⊕	Prepared	Analyzed	Dil Fa
1,1,1-Trichloroethane	ND		6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	•
1,1,2,2-Tetrachloroethane	ND	J	6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	•
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	
1,1,2-Trichloroethane	ND		6.8		ug/Kg	\$	12/10/14 05:05	12/10/14 07:07	
1,1-Dichloroethane	ND		6.8		ug/Kg	₩.	12/10/14 05:05	12/10/14 07:07	
1,1-Dichloroethene	ND		6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	
1,2,4-Trichlorobenzene	ND	J	6.8	1.2	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	•
1,2-Dibromo-3-Chloropropane	ND		6.8	1.0	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,2-Dichlorobenzene	3.0	J	6.8	1.1	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,2-Dichloroethane	ND		6.8	0.84	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,2-Dichloropropane	ND		6.8	0.74	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,3-Dichlorobenzene	ND		6.8	0.89	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
1,4-Dichlorobenzene	ND		6.8	0.87	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
2-Butanone (MEK)	ND		6.8	1.2	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
2-Hexanone	ND		6.8	0.94	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
1-Methyl-2-pentanone (MIBK)	ND		6.8	0.89	ug/Kg		12/10/14 05:05	12/10/14 07:07	
Acetone	ND		27	6.8	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Benzene	17	1	6.8	0.92	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Bromoform	ND		6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	
Bromomethane	ND		6.8		ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Carbon disulfide	ND		6.8		ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Carbon tetrachloride	ND		6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	
Chlorobenzene	2.3		6.8		ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Chlorodibromomethane	ND	3	6.8		ug/Kg ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Chloroethane	ND		6.8		ug/Kg	 \$	12/10/14 05:05	12/10/14 07:07	
Chloroform	ND		6.8		ug/Kg	~ \$	12/10/14 05:05	12/10/14 07:07	•
Chloromethane	ND		6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	
cis-1,2-Dichloroethene	ND		6.8		ug/Kg	φ.	12/10/14 05:05	12/10/14 07:07	
cis-1,3-Dichloropropene	ND		6.8		ug/Kg	φ.	12/10/14 05:05	12/10/14 07:07	
Cyclohexane	11	J	6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	
Dichlorobromomethane	ND		6.8		ug/Kg	\$	12/10/14 05:05	12/10/14 07:07	•
Dichlorodifluoromethane	ND		6.8		ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	•
Ethyl ether	ND		6.8	0.80	ug/Kg		12/10/14 05:05	12/10/14 07:07	
Ethylbenzene	3.1	J	6.8	0.88	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	•
1,2-Dibromoethane	ND		6.8	1.2	ug/Kg	⇔	12/10/14 05:05	12/10/14 07:07	
sopropylbenzene	2.0	J	6.8	0.93	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Methyl acetate	ND	J	6.8	1.2	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Methyl tert-butyl ether	ND		6.8	1.0	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Methylcyclohexane	48	J	6.8	0.99	ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
Methylene Chloride	6.8 4.6	JB UB	6.8	0.92	ug/Kg		12/10/14 05:05	12/10/14 07:07	
Styrene	ND		6.8	0.96	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Tetrachloroethene	ND		6.8	0.93	ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Toluene	ND		6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	
rans-1,2-Dichloroethene	ND		6.8		ug/Kg	₩	12/10/14 05:05	12/10/14 07:07	
rans-1,3-Dichloropropene	ND	* J	6.8		ug/Kg	₽	12/10/14 05:05	12/10/14 07:07	
Trichloroethene	ND		6.8		ug/Kg		12/10/14 05:05	12/10/14 07:07	
Trichlorofluoromethane	ND		6.8		ug/Kg ug/Kg	т ф	12/10/14 05:05	12/10/14 07:07	
Vinyl chloride	ND		6.8		ug/Kg ug/Kg	∵	12/10/14 05:05	12/10/14 07:07	

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-102 Lab Sample ID: 180-39575-4

Matrix: Solid Date Collected: 12/03/14 11:20 Date Received: 12/05/14 18:40 Percent Solids: 73.3

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	74		52 - 124				12/10/14 05:05	12/10/14 07:07	1
4-Bromofluorobenzene (Surr)	79		63 - 120				12/10/14 05:05	12/10/14 07:07	1
Dibromofluoromethane (Surr)	90		68 - 121				12/10/14 05:05	12/10/14 07:07	1
Toluene-d8 (Surr)	108		72 - 127				12/10/14 05:05	12/10/14 07:07	1
Method: 300.0 - Anions, Ion Cl	hromatography -	Soluble							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	140		130	29	mg/Kg	₽		12/24/14 11:43	10
Method: 8315A - Carbonyl Cor	mpounds (HPLC)								
_					1114	_			
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte Formaldehyde	1100 Result	J	140 RL	110	ug/Kg	— ÿ	12/08/14 07:45	12/10/14 09:49	Dil Fac
	1100	J							Dil Fac
Formaldehyde Method: In-House - Sulfonic A	1100	J							Dil Fac
Formaldehyde	1100	J	140	110	ug/Kg		12/08/14 07:45	12/10/14 09:49	1
Formaldehyde Method: In-House - Sulfonic A Analyte m-Benzenedisulfonic acid	1100 acids by LCMS/MS Result	J	140	110 RL	ug/Kg Unit		12/08/14 07:45 Prepared	12/10/14 09:49 Analyzed	Dil Fac
Formaldehyde Method: In-House - Sulfonic A Analyte m-Benzenedisulfonic acid p-Phenolsulfonic acid	1100 Acids by LCMS/MS Result 400	J	140 RL 20	110 RL 20	ug/Kg Unit ug/Kg		12/08/14 07:45 Prepared 12/08/14 15:50	12/10/14 09:49 Analyzed 12/09/14 23:51	Dil Fac
Formaldehyde Method: In-House - Sulfonic A Analyte	1100 Acids by LCMS/MS Result 400 ND	Qualifier	140 RL 20 20	110 RL 20 20	ug/Kg Unit ug/Kg ug/Kg		Prepared 12/08/14 15:50 12/08/14 15:50	12/10/14 09:49 Analyzed 12/09/14 23:51 12/09/14 23:51	Dil Fac

Client Sample ID: SW-3_LANGAN

Lab Sample ID: 180-39575-5 Date Collected: 12/03/14 11:40 **Matrix: Water**

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 16:21	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 16:21	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 16:21	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 16:21	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 16:21	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 16:21	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 16:21	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 16:21	1
1,2-Dichlorobenzene	0.76	J	1.0	0.15	ug/L			12/16/14 16:21	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 16:21	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 16:21	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 16:21	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 16:21	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 16:21	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 16:21	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 16:21	1
Acetone	3.8	J	5.0	2.5	ug/L			12/16/14 16:21	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 16:21	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 16:21	1
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 16:21	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 16:21	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 16:21	1
Chlorobenzene	0.42	J	1.0	0.14	ug/L			12/16/14 16:21	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 16:21	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-3_LANGAN

Lab Sample ID: 180-39575-5 Date Collected: 12/03/14 11:40

Matrix: Water

Method: 8260C - Volatile Organi	c Compounds	(GC/MS) (Co	ntinued)						
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 16:21	
Chloroform	ND		1.0	0.17	-			12/16/14 16:21	•
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 16:21	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 16:21	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 16:21	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 16:21	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 16:21	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 16:21	1
Ethyl ether	13		1.0	0.082	ug/L			12/16/14 16:21	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 16:21	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 16:21	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 16:21	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 16:21	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 16:21	1
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 16:21	1
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 16:21	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 16:21	1
Tetrachloroethene	ND		1.0	0.15				12/16/14 16:21	1
Toluene	ND		1.0		ug/L			12/16/14 16:21	1
trans-1,2-Dichloroethene	ND		1.0	0.17	_			12/16/14 16:21	1
trans-1,3-Dichloropropene	ND		1.0	0.15	_			12/16/14 16:21	1
Trichloroethene	ND		1.0		ug/L			12/16/14 16:21	1
Trichlorofluoromethane	ND		1.0	0.20	_			12/16/14 16:21	1
Vinyl chloride	ND		1.0	0.23	-			12/16/14 16:21	1
,					- 3				
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		64 - 135					12/16/14 16:21	1
4-Bromofluorobenzene (Surr)	103		70 - 118					12/16/14 16:21	1
Dibromofluoromethane (Surr)	103		70 - 128					12/16/14 16:21	
Toluene-d8 (Surr)	96		71 - 118					12/16/14 16:21	1
Method: 8270C LL - Semivolatile	e Organic Com	oounds by G	CMS - Low Le	vels					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/09/14 08:31	12/10/14 13:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	69		30 - 150				12/09/14 08:31	12/10/14 13:18	
2-Fluorobiphenyl	51		30 - 150				12/09/14 08:31	12/10/14 13:18	1
			30 - 150				12/09/14 08:31	12/10/14 13:18	1
	38								
2-Fluorophenol	38 45						12/09/14 08:31	12/10/14 13:18	1
2-Fluorophenol Nitrobenzene-d5	45		30 - 150				12/09/14 08:31 12/09/14 08:31	12/10/14 13:18 12/10/14 13:18	
2-Fluorophenol Nitrobenzene-d5 Phenol-d5							12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	12/10/14 13:18 12/10/14 13:18 12/10/14 13:18	1
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14	45 42 71		30 - 150 30 - 150				12/09/14 08:31	12/10/14 13:18	1
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chr	45 42 71 omatography	Qualifier	30 - 150 30 - 150 10 - 150	MDI	Unit	n	12/09/14 08:31 12/09/14 08:31	12/10/14 13:18 12/10/14 13:18	1
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chr Analyte	45 42 71 omatography Result	Qualifier	30 - 150 30 - 150 10 - 150 RL		Unit	<u>D</u>	12/09/14 08:31	12/10/14 13:18 12/10/14 13:18 Analyzed	Dil Fac
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chr Analyte	45 42 71 omatography	Qualifier	30 - 150 30 - 150 10 - 150		Unit mg/L	<u>D</u>	12/09/14 08:31 12/09/14 08:31	12/10/14 13:18 12/10/14 13:18	1
2-Fluorophenol	omatography Result 84 pounds (HPLC)		30 - 150 30 - 150 10 - 150 RL 1.0	0.21	mg/L	<u>D</u>	12/09/14 08:31 12/09/14 08:31	12/10/14 13:18 12/10/14 13:18 Analyzed	Dil Fac
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chr Analyte Sulfate	omatography Result 84 pounds (HPLC)		30 - 150 30 - 150 10 - 150 RL	0.21 MDL		<u>D</u>	12/09/14 08:31 12/09/14 08:31	12/10/14 13:18 12/10/14 13:18 Analyzed	Dil Fac

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-3_LANGAN Lab Sample ID: 180-39575-5

Date Collected: 12/03/14 11:40 **Matrix: Water** Date Received: 12/05/14 18:40

Method: In-House - Sulfonic Acid	ds by LCMS/MS						
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	2300	50	18 ug/L		12/09/14 15:47	12/10/14 14:21	10
p-Phenolsulfonic acid	270	50	8.4 ug/L		12/09/14 15:47	12/10/14 14:21	10
Benzenesulfonic acid	12 J	50	7.0 ug/L		12/09/14 15:47	12/10/14 14:21	10
Resorcinol	21 J	50	5.9 ug/L		12/09/14 15:47	12/10/14 14:21	10
2,3',4-Trihydroxydiphenyl	ND	50	16 ug/L		12/09/14 15:47	12/10/14 14:21	10

Client Sample ID: SED-101 Lab Sample ID: 180-39575-6

Date Collected: 12/03/14 12:00

Matrix: Solid Date Received: 12/05/14 18:40 Percent Solids: 83.8

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND ND	6.0	0.58	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
1,1,2,2-Tetrachloroethane	ND	6.0	0.86	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	6.0	1.3	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
1,1,2-Trichloroethane	ND	6.0	0.99	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
1,1-Dichloroethane	ND	6.0	0.69	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
1,1-Dichloroethene	ND	6.0	1.0	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
1,2,4-Trichlorobenzene	ND	6.0	1.1	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
1,2-Dibromo-3-Chloropropane	ND	6.0	0.89	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
1,2-Dichlorobenzene	1.3 J	6.0	0.95	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
1,2-Dichloroethane	ND	6.0	0.73	ug/Kg	φ.	12/10/14 05:05	12/10/14 09:44	1
1,2-Dichloropropane	ND	6.0	0.65	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
1,3-Dichlorobenzene	ND	6.0	0.78	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
1,4-Dichlorobenzene	ND	6.0	0.76	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
2-Butanone (MEK)	ND	6.0	1.1	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
2-Hexanone	ND	6.0	0.82	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
4-Methyl-2-pentanone (MIBK)	ND	6.0	0.78	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
Acetone	ND	24	6.0	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Benzene	ND	6.0	0.81	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Bromoform	ND	6.0	0.53	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
Bromomethane	ND	6.0	0.88	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Carbon disulfide	ND	6.0	0.61	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Carbon tetrachloride	ND	6.0	0.53	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
Chlorobenzene	ND	6.0	0.90	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Chlorodibromomethane	ND	6.0	0.85	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Chloroethane	ND	6.0	1.8	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
Chloroform	ND	6.0	0.70	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Chloromethane	ND	6.0	1.0	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
cis-1,2-Dichloroethene	ND	6.0	0.84	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
cis-1,3-Dichloropropene	ND	6.0	0.81	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Cyclohexane	ND	6.0	0.44	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Dichlorobromomethane	ND	6.0		ug/Kg		12/10/14 05:05	12/10/14 09:44	1
Dichlorodifluoromethane	ND	6.0	0.79	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Ethyl ether	11	6.0	0.70	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Ethylbenzene	ND	6.0	0.77	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
1,2-Dibromoethane	ND	6.0	1.0	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Isopropylbenzene	ND	6.0	0.81	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Methyl acetate	ND J	6.0	1.1	ug/Kg	 ф	12/10/14 05:05	12/10/14 09:44	1
Methyl tert-butyl ether	ND	6.0		ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SED-101 Lab Sample ID: 180-39575-6

 Date Collected: 12/03/14 12:00
 Matrix: Solid

 Date Received: 12/05/14 18:40
 Percent Solids: 83.8

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylcyclohexane	ND		6.0	0.86	ug/Kg	₩	12/10/14 05:05	12/10/14 09:44	1
Methylene Chloride	6.0 4.5	JB UB	6.0	0.80	ug/Kg	\$	12/10/14 05:05	12/10/14 09:44	1
Styrene	ND		6.0	0.84	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Tetrachloroethene	ND		6.0	0.81	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Toluene	ND		6.0	0.87	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
trans-1,2-Dichloroethene	ND		6.0	0.71	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
trans-1,3-Dichloropropene	ND	≁ j	6.0	0.71	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Trichloroethene	ND		6.0	0.78	ug/Kg		12/10/14 05:05	12/10/14 09:44	1
Trichlorofluoromethane	ND		6.0	1.1	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Vinyl chloride	ND		6.0	0.56	ug/Kg	₽	12/10/14 05:05	12/10/14 09:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	77		52 - 124				12/10/14 05:05	12/10/14 09:44	1
4-Bromofluorobenzene (Surr)	83		63 - 120				12/10/14 05:05	12/10/14 09:44	1
Dibromofluoromethane (Surr)	92		68 - 121				12/10/14 05:05	12/10/14 09:44	1
Toluene-d8 (Surr)	100		72 - 127				12/10/14 05:05	12/10/14 09:44	1
- -		Soluble	72 - 127				12/10/14 05:05	12/10/14 09:44	1
Toluene-d8 (Surr) Method: 300.0 - Anions, Ion C Analyte	Chromatography -	Soluble Qualifier	72 ₋ 127	MDL	Unit	D	12/10/14 05:05 Prepared	12/10/14 09:44 Analyzed	Dil Fac
Method: 300.0 - Anions, Ion C	Chromatography -	Qualifier		MDL 2.5	Unit mg/Kg	<u>D</u>			
Method: 300.0 - Anions, Ion C Analyte Sulfate	Chromatography - Result 1600	Qualifier B-	RL					Analyzed	Dil Fac
Method: 300.0 - Anions, Ion C Analyte	Chromatography - Result 1600 cmpounds (HPLC)	Qualifier B-	RL	2.5				Analyzed	Dil Fac
Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co	Chromatography - Result 1600 cmpounds (HPLC)	Qualifier B	RL12	2.5	mg/Kg	*	Prepared	Analyzed 12/30/14 02:22	Dil Fac
Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co Analyte	Chromatography - Result 1600 Compounds (HPLC) Result 1100	Qualifier Qualifier	RL	2.5 MDL	mg/Kg	\	Prepared Prepared	Analyzed 12/30/14 02:22 Analyzed	Dil Fac
Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde	chromatography - Result 1600 cmpounds (HPLC) Result 1100 Acids by LCMS/MS	Qualifier Qualifier	RL	2.5 MDL	mg/Kg	\	Prepared Prepared	Analyzed 12/30/14 02:22 Analyzed	Dil Fac
Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde Method: In-House - Sulfonic A	chromatography - Result 1600 cmpounds (HPLC) Result 1100 Acids by LCMS/MS	Qualifier Qualifier J	RL 12 RL 120	2.5 MDL 92	mg/Kg Unit ug/Kg		Prepared Prepared 12/08/14 07:45	Analyzed 12/30/14 02:22 Analyzed 12/10/14 10:24	Dil Fac
Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde Method: In-House - Sulfonic A Analyte	chromatography - Result 1600 cmpounds (HPLC) Result 1100 Acids by LCMS/MS Result	Qualifier Qualifier J Qualifier	RL 120	2.5 MDL 92	mg/Kg Unit ug/Kg Unit		Prepared 12/08/14 07:45 Prepared	Analyzed 12/30/14 02:22 Analyzed 12/10/14 10:24 Analyzed	Dil Fac
Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde Method: In-House - Sulfonic A Analyte m-Benzenedisulfonic acid p-Phenolsulfonic acid	chromatography - Result 1600 compounds (HPLC) Result 1100 Acids by LCMS/M3 Result 85000	Qualifier Qualifier J Qualifier D DJ	RL 120 RL 120 RL 990	2.5 MDL 92 RL 990	mg/Kg Unit ug/Kg Unit ug/Kg		Prepared 12/08/14 07:45 Prepared 12/08/14 15:50	Analyzed 12/30/14 02:22 Analyzed 12/10/14 10:24 Analyzed 12/09/14 21:51	Dil Fac
Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde Method: In-House - Sulfonic A Analyte m-Benzenedisulfonic acid	Chromatography - Result 1600 Impounds (HPLC) Result 1100 Acids by LCMS/MS Result 85000 7200	Qualifier Qualifier J Qualifier D DJ	RL 120 RL 990 400	2.5 MDL 92 RL 990 400	mg/Kg Unit ug/Kg Unit ug/Kg ug/Kg ug/Kg		Prepared 12/08/14 07:45 Prepared 12/08/14 15:50 12/08/14 15:50	Analyzed 12/30/14 02:22 Analyzed 12/10/14 10:24 Analyzed 12/09/14 21:51 12/09/14 22:01	Dil Fac

Client Sample ID: DUP120314 Lab Sample ID: 180-39575-7

Date Collected: 12/03/14 00:00 Matrix: Solid
Date Received: 12/05/14 18:40 Percent Solids: 79.5

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	6.3	0.61	ug/Kg	*	12/10/14 05:05	12/10/14 10:06	1
1,1,2,2-Tetrachloroethane	ND	6.3	0.90	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	6.3	1.3	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	1
1,1,2-Trichloroethane	ND	6.3	1.0	ug/Kg	\$	12/10/14 05:05	12/10/14 10:06	1
1,1-Dichloroethane	ND	6.3	0.72	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	1
1,1-Dichloroethene	ND	6.3	1.1	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	1
1,2,4-Trichlorobenzene	ND	6.3	1.1	ug/Kg	\$	12/10/14 05:05	12/10/14 10:06	1
1,2-Dibromo-3-Chloropropane	ND	6.3	0.94	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	1
1,2-Dichlorobenzene	2.1 J	6.3	1.0	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	1
1,2-Dichloroethane	ND	6.3	0.77	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	1
1,2-Dichloropropane	ND	6.3	0.68	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	1
1,3-Dichlorobenzene	ND	6.3	0.82	ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: DUP120314	CI	lient	Samp	le ID	: DU	JP12	0314
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 Date Collected: 12/03/14 00:00
 Matrix: Solid

 Date Received: 12/05/14 18:40
 Percent Solids: 79.5

Method: 8260B - Volatile Orga Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		6.3	0.80	ug/Kg	-	12/10/14 05:05	12/10/14 10:06	
2-Butanone (MEK)	ND		6.3	1.1	ug/Kg		12/10/14 05:05	12/10/14 10:06	· · · · · · · .
2-Hexanone	ND		6.3	0.87	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
4-Methyl-2-pentanone (MIBK)	ND		6.3	0.82			12/10/14 05:05	12/10/14 10:06	
Acetone	ND		25		ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Benzene	ND		6.3	0.85		₽	12/10/14 05:05	12/10/14 10:06	
Bromoform	ND		6.3	0.56			12/10/14 05:05	12/10/14 10:06	
Bromomethane	ND		6.3		ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Carbon disulfide	1.5	a.	6.3		ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Carbon tetrachloride	ND		6.3		ug/Kg		12/10/14 05:05	12/10/14 10:06	
Chlorobenzene	ND		6.3		ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Chlorodibromomethane	ND		6.3	0.89		₽	12/10/14 05:05	12/10/14 10:06	
Chloroethane	ND		6.3	1.9	ug/Kg	· · · · · · · · · · · · · · · · · · ·	12/10/14 05:05	12/10/14 10:06	,
Chloroform	ND		6.3		ug/Kg ug/Kg	*	12/10/14 05:05	12/10/14 10:06	
Chloromethane	ND ND		6.3	1.1		₩	12/10/14 05:05	12/10/14 10:06	
cis-1,2-Dichloroethene	ND		6.3		ug/Kg ug/Kg		12/10/14 05:05	12/10/14 10:06	,
	ND		6.3			₩	12/10/14 05:05	12/10/14 10:06	
cis-1,3-Dichloropropene	ND ND				ug/Kg	₩			
Cyclohexane			6.3	0.47			12/10/14 05:05	12/10/14 10:06	
Dichlorobromomethane	ND		6.3	0.71	ug/Kg		12/10/14 05:05	12/10/14 10:06	•
Dichlorodifluoromethane	ND		6.3		0 0	\$	12/10/14 05:05	12/10/14 10:06	•
Ethyl ether	13		6.3		ug/Kg	· · · · ·	12/10/14 05:05	12/10/14 10:06	
Ethylbenzene	ND		6.3	0.81	0 0	ψ.	12/10/14 05:05	12/10/14 10:06	
1,2-Dibromoethane	ND		6.3	1.1	ug/Kg	ψ.	12/10/14 05:05	12/10/14 10:06	
Isopropylbenzene	ND		6.3		ug/Kg		12/10/14 05:05	12/10/14 10:06	
Methyl acetate	ND	J	6.3	1.1	0 0	Ţ.	12/10/14 05:05	12/10/14 10:06	•
Methyl tert-butyl ether	ND		6.3		ug/Kg	₩	12/10/14 05:05	12/10/14 10:06	
Methylcyclohexane	ND		6.3	0.91	ug/Kg	<u>.</u>	12/10/14 05:05	12/10/14 10:06	
Methylene Chloride		JB UB	6.3		ug/Kg	₽.	12/10/14 05:05	12/10/14 10:06	•
Styrene	ND		6.3	0.89	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	•
Tetrachloroethene	ND		6.3	0.86	ug/Kg		12/10/14 05:05	12/10/14 10:06	
Toluene	ND		6.3	0.92	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	•
trans-1,2-Dichloroethene	ND		6.3	0.75	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	•
trans-1,3-Dichloropropene	ND	- J	6.3	0.75	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	•
Trichloroethene	ND		6.3	0.83	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Trichlorofluoromethane	ND		6.3	1.2	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	
Vinyl chloride	ND		6.3	0.59	ug/Kg	₽	12/10/14 05:05	12/10/14 10:06	,
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	78		52 - 124				12/10/14 05:05	12/10/14 10:06	
4-Bromofluorobenzene (Surr)	81		63 - 120				12/10/14 05:05	12/10/14 10:06	
Dibromofluoromethane (Surr)	93		68 - 121				12/10/14 05:05	12/10/14 10:06	
Toluene-d8 (Surr)	105		72 - 127				12/10/14 05:05	12/10/14 10:06	
Method: 300.0 - Anions, Ion Cl	nromatography -	Soluble							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1500	B-	12	2.7	mg/Kg	\$		12/30/14 02:38	
Method: 8315A - Carbonyl Cor	npounds (HPLC)								
Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Formaldehyde	560		130	08	ug/Kg	<u></u>	12/08/14 07:45	12/10/14 10:36	-

Lab Sample ID: 180-39575-7

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: DUP120314 Lab Sample ID: 180-39575-7

Date Collected: 12/03/14 00:00 Matrix: Solid

Date Received: 12/05/14 18:40

Date Received: 12/05/14 18:40

Method: In-House - Sulfonic Ac	ids by LCMS/MS								
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	85000	D	990	990	ug/Kg		12/08/14 15:50	12/09/14 22:34	100
p-Phenolsulfonic acid	7400	D	390	390	ug/Kg		12/08/14 15:50	12/09/14 22:56	40
Benzenesulfonic acid	870	* D	390	390	ug/Kg		12/08/14 15:50	12/09/14 22:56	40
Resorcinol	ND	J	390	390	ug/Kg		12/08/14 15:50	12/09/14 22:56	40
2,3',4-Trihydroxydiphenyl	ND	* R	1200	1200	ug/Kg		12/08/14 15:50	12/09/14 22:56	40

Client Sample ID: SG-7 Lab Sample ID: 180-39575-8

Date Collected: 12/03/14 12:20 Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 16:45	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 16:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 16:45	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 16:45	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 16:45	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 16:45	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 16:45	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 16:45	1
1,2-Dichlorobenzene	0.83	J	1.0	0.15	ug/L			12/16/14 16:45	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 16:45	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 16:45	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 16:45	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 16:45	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 16:45	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 16:45	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 16:45	1
Acetone	4.1	J	5.0	2.5	ug/L			12/16/14 16:45	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 16:45	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 16:45	1
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 16:45	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 16:45	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 16:45	1
Chlorobenzene	0.49	J	1.0	0.14	ug/L			12/16/14 16:45	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 16:45	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 16:45	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 16:45	1
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 16:45	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 16:45	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 16:45	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 16:45	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 16:45	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 16:45	1
Ethyl ether	12		1.0	0.082	ug/L			12/16/14 16:45	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 16:45	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 16:45	1
Isopropylbenzene	ND		1.0		ug/L			12/16/14 16:45	1
Methyl acetate	ND		1.0		ug/L			12/16/14 16:45	1
Methyl tert-butyl ether	ND		1.0		ug/L			12/16/14 16:45	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-7 Lab Sample ID: 180-39575-8

Date Collected: 12/03/14 12:20 Matrix: Water
Date Received: 12/05/14 18:40

Method: 8260C - Volatile Organic C		Qualifier	RL	MDL	Unit	D	Dropored	Analyzed	Dil Fa
Analyte Methylovelehovene	ND	Qualifier	1.0	0.26			Prepared	Analyzed 12/16/14 16:45	
Methylcyclohexane	ND ND		1.0		ug/L			12/16/14 16:45	
Methylene Chloride	ND ND		1.0		ug/L			12/16/14 16:45	
Styrene	ND ND		1.0	0.097	•				
Tetrachloroethene				0.15				12/16/14 16:45	
Toluene	ND		1.0		ug/L			12/16/14 16:45	
trans-1,2-Dichloroethene	ND ND		1.0		ug/L			12/16/14 16:45	
trans-1,3-Dichloropropene			1.0		ug/L			12/16/14 16:45	
Trichlorothene	ND		1.0		ug/L			12/16/14 16:45	
Trichlorofluoromethane	ND		1.0		ug/L			12/16/14 16:45	
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 16:45	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	101		64 - 135					12/16/14 16:45	
4-Bromofluorobenzene (Surr)	106		70 - 118					12/16/14 16:45	
Dibromofluoromethane (Surr)	100		70 - 128					12/16/14 16:45	
Toluene-d8 (Surr)	100		71 - 118					12/16/14 16:45	
Method: 8270C LL - Semivolatile Or Analyte Phenol	-	Qualifier	RL 0.93	MDL 0.051		D	Prepared 12/09/14 08:31	Analyzed 12/10/14 13:46	
Analyte	Result		RL	MDL		<u>D</u>			
Analyte Phenol	Result	Qualifier		MDL		<u>D</u>	12/09/14 08:31	12/10/14 13:46	
Analyte Phenol Surrogate	Result ND %Recovery		RL 0.93	MDL		<u>D</u>	12/09/14 08:31 Prepared	12/10/14 13:46 Analyzed	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol	Result ND %Recovery 84	Qualifier	RL 0.93 <i>Limits</i> 30 - 150	MDL		<u>D</u>	12/09/14 08:31 Prepared 12/09/14 08:31	12/10/14 13:46 Analyzed 12/10/14 13:46	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl	Result ND %Recovery 84 64	Qualifier	RL 0.93 Limits 30 - 150 30 - 150	MDL		<u>D</u>	12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol	Result ND %Recovery 84	Qualifier	RL 0.93 <i>Limits</i> 30 - 150	MDL		<u>D</u>	12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	Result ND %Recovery 84 64 50	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150	MDL		<u>D</u>	12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5	Result ND %Recovery 84 64 50 56	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150	MDL		<u>D</u>	Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46	Dil Fac
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5	Result ND %Recovery 84 64 50 56 51 80	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150	MDL		<u>D</u>	12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14	Result ND %Recovery 84 64 50 56 51 80 atography	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150	MDL	ug/L	<u>D</u>	12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma	Result ND %Recovery 84 64 50 56 51 80 atography	Qualifier Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	MDL 0.051	ug/L Unit		12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46	Dil Fac
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma	Result ND %Recovery 84 64 50 56 51 80 atography Result 79	Qualifier Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	MDL 0.051	ug/L Unit		12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate	Result ND %Recovery 84 64 50 56 51 80 atography Result 79 nds (HPLC)	Qualifier Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	MDL 0.051	ug/L Unit mg/L		12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46	Dil Fac
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compou	Result ND %Recovery 84 64 50 56 51 80 atography Result 79 nds (HPLC)	Qualifier Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0	MDL 0.051 MDL 0.21	ug/L Unit mg/L	D	12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compou Analyte Formaldehyde	Result ND %Recovery 84 64 50 56 51 80 80	Qualifier Qualifier Qualifier UB	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0	MDL 0.051 MDL 0.21	Unit mg/L	D	12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 Prepared Prepared	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 Analyzed 12/22/14 14:47 Analyzed	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compou Analyte	Result	Qualifier Qualifier Qualifier UB	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0	MDL 0.051 MDL 0.21	Unit mg/L Unit ug/L	D	12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 Prepared Prepared	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 Analyzed 12/22/14 14:47 Analyzed	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compou Analyte Formaldehyde Method: In-House - Sulfonic Acids	Result	Qualifier Qualifier Qualifier UB	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0	MDL 0.051 MDL 0.21 MDL 5.0	Unit mg/L Unit ug/L	D	12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 Prepared Prepared 12/05/14 10:51	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 Analyzed 12/22/14 14:47 Analyzed 12/08/14 13:53	Dil Fac
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compou Analyte Formaldehyde Method: In-House - Sulfonic Acids I Analyte	Result ND %Recovery 84 64 50 56 51 80 80 80 80 80 80 80 8	Qualifier Qualifier Qualifier Qualifier Qualifier Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 50 RL	MDL 0.051 MDL 5.0 MDL 18	Unit mg/L Unit ug/L Unit	D	12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 Prepared Prepared 12/05/14 10:51 Prepared	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 Analyzed 12/22/14 14:47 Analyzed 12/08/14 13:53	Dil Fac
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compou Analyte Formaldehyde Method: In-House - Sulfonic Acids I Analyte m-Benzenedisulfonic acid	Result ND %Recovery 84 64 50 56 51 80 80 80 80 80 80 80 8	Qualifier Qualifier Qualifier Qualifier Qualifier Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 50 RL 50	MDL 0.21 MDL 5.0 MDL 18 8.4	Unit mg/L Unit ug/L	D	12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 Prepared Prepared 12/05/14 10:51 Prepared 12/09/14 15:47	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 Analyzed 12/22/14 14:47 Analyzed 12/08/14 13:53 Analyzed 12/10/14 14:43	Dil Fac
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compou Analyte Formaldehyde Method: In-House - Sulfonic Acids I Analyte m-Benzenedisulfonic acid p-Phenolsulfonic acid	Result ND %Recovery 84 64 50 56 51 80 80 80 80 80 80 80 8	Qualifier Qualifier Qualifier Qualifier Qualifier Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 50 RL 50	MDL 0.051 MDL 5.0 MDL 18 8.4 7.0	Unit mg/L Unit ug/L Unit ug/L ug/L	D	12/09/14 08:31 Prepared 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 12/09/14 08:31 Prepared 12/05/14 10:51 Prepared 12/05/14 15:47 12/09/14 15:47	12/10/14 13:46 Analyzed 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 12/10/14 13:46 Analyzed 12/22/14 14:47 Analyzed 12/08/14 13:53 Analyzed 12/10/14 14:43 12/10/14 14:43	Dil Fac

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-5 Lab Sample ID: 180-39575-9

Date Collected: 12/03/14 12:35 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 17:09	
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 17:09	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 17:09	
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 17:09	
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 17:09	
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 17:09	
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 17:09	
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 17:09	
1,2-Dichlorobenzene	1.0		1.0	0.15	ug/L			12/16/14 17:09	
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 17:09	
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 17:09	
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 17:09	
1,4-Dichlorobenzene	0.23	J	1.0	0.21	ug/L			12/16/14 17:09	
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 17:09	
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 17:09	
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 17:09	
Acetone	3.4	J	5.0	2.5	ug/L			12/16/14 17:09	
Benzene	ND		1.0	0.11	ug/L			12/16/14 17:09	
Bromoform	ND		1.0	0.19	ug/L			12/16/14 17:09	
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 17:09	
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 17:09	
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 17:09	
Chlorobenzene	0.63	J	1.0	0.14	ug/L			12/16/14 17:09	
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 17:09	
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 17:09	
Chloroform	ND		1.0	0.17	ug/L			12/16/14 17:09	
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 17:09	
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 17:09	
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 17:09	
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 17:09	
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 17:09	
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 17:09	
Ethyl ether	5.8		1.0	0.082	ug/L			12/16/14 17:09	
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 17:09	
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 17:09	
sopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 17:09	
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 17:09	
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 17:09	
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 17:09	
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 17:09	
Styrene	ND		1.0	0.097	ug/L			12/16/14 17:09	
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 17:09	
Toluene	ND		1.0		ug/L			12/16/14 17:09	
rans-1,2-Dichloroethene	ND		1.0		ug/L			12/16/14 17:09	
rans-1,3-Dichloropropene	ND		1.0		ug/L			12/16/14 17:09	
Trichloroethene	ND		1.0		ug/L			12/16/14 17:09	
Trichlorofluoromethane	ND		1.0		ug/L			12/16/14 17:09	
Vinyl chloride	ND		1.0		ug/L			12/16/14 17:09	

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Client Sample ID: SG-5 Lab Sample ID: 180-39575-9

Matrix: Water

Date Collected: 12/03/14 12:35 Date Received: 12/05/14 18:40

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100	64 - 135		12/16/14 17:09	1
4-Bromofluorobenzene (Surr)	102	70 - 118		12/16/14 17:09	1
Dibromofluoromethane (Surr)	104	70 - 128		12/16/14 17:09	1
Toluene-d8 (Surr)	99	71 - 118		12/16/14 17:09	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/09/14 08:31	12/10/14 14:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	83		30 - 150				12/09/14 08:31	12/10/14 14:14	1
2-Fluorobiphenyl	69		30 - 150				12/09/14 08:31	12/10/14 14:14	1
2-Fluorophenol	56		30 - 150				12/09/14 08:31	12/10/14 14:14	1
Nitrobenzene-d5	64		30 - 150				12/09/14 08:31	12/10/14 14:14	1
Phenol-d5	57		30 - 150				12/09/14 08:31	12/10/14 14:14	1
Terphenyl-d14	79		10 - 150				12/09/14 08:31	12/10/14 14:14	1

Analyte	Result Qualit	ner RL	MDL	Unit	D	Prepared	Anaiyzed	DII Fac
Sulfate	78	1.0	0.21	mg/L			12/20/14 23:48	1
Mathada 9245A Carbarral Carrana	unda (UDI C)							

Method: 8315A - Carbonyi Compo	unas (I	HPLC)								
Analyte		Result Qu	ualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	50	6.0 J	UB	50	5.0	ug/L		12/05/14 10:51	12/08/14 14:04	1

Analyte	Result (Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	2300		50	18	ug/L		12/09/14 15:47	12/10/14 15:15	10
p-Phenolsulfonic acid	210		50	8.4	ug/L		12/09/14 15:47	12/10/14 15:15	10
Benzenesulfonic acid	13 .	J	50	7.0	ug/L		12/09/14 15:47	12/10/14 15:15	10
Resorcinol	170		50	5.9	ug/L		12/09/14 15:47	12/10/14 15:15	10
2,3',4-Trihydroxydiphenyl	ND		50	16	ug/L		12/09/14 15:47	12/10/14 15:15	10

Client Sample ID: SG-4

Date Collected: 12/04/14 09:55

Lab Sample ID: 180-39575-10

Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/15/14 13:43	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/15/14 13:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/15/14 13:43	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/15/14 13:43	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/15/14 13:43	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/15/14 13:43	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/15/14 13:43	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/15/14 13:43	1
1,2-Dichlorobenzene	1.1		1.0	0.15	ug/L			12/15/14 13:43	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/15/14 13:43	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/15/14 13:43	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/15/14 13:43	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-4 Lab Sample ID: 180-39575-10

Date Collected: 12/04/14 09:55

Date Received: 12/05/14 18:40

Matrix: Water

ND ND 0.75 ND ND ND ND ND ND	J	1.0 5.0 5.0 5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0	0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L			12/15/14 13:43 12/15/14 13:43	1 1 1 1 1 1 1 1 1 1
ND ND ND ND ND ND ND ND ND ND ND ND ND N		5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	0.16 0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L			12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43	1 1 1 1 1 1
ND ND ND ND ND ND 0.75 ND ND ND		5.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	0.53 2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L			12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43	1 1 1 1 1 1
ND ND ND ND ND ND 0.75 ND ND ND		5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	2.5 0.11 0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L ug/L			12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43	1 1 1 1 1
ND ND ND ND O.75 ND ND ND		1.0 1.0 1.0 1.0 1.0 1.0 1.0	0.11 0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L			12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43	1 1 1 1
ND ND ND O.75 ND ND ND		1.0 1.0 1.0 1.0 1.0 1.0	0.19 0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L ug/L			12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43	1 1 1 1
ND ND O.75 ND ND ND ND ND ND ND ND		1.0 1.0 1.0 1.0 1.0 1.0	0.31 0.21 0.14 0.14 0.14	ug/L ug/L ug/L ug/L ug/L			12/15/14 13:43 12/15/14 13:43 12/15/14 13:43 12/15/14 13:43	1 1 1 1
ND ND 0.75 ND ND ND ND ND ND		1.0 1.0 1.0 1.0 1.0	0.21 0.14 0.14 0.14 0.21	ug/L ug/L ug/L ug/L			12/15/14 13:43 12/15/14 13:43 12/15/14 13:43	1 1 1
ND 0.75 ND ND ND ND	J	1.0 1.0 1.0 1.0	0.14 0.14 0.14 0.21	ug/L ug/L ug/L			12/15/14 13:43 12/15/14 13:43	1
0.75 ND ND ND ND	J	1.0 1.0 1.0 1.0	0.14 0.14 0.21	ug/L ug/L			12/15/14 13:43	1
ND ND ND ND	J	1.0 1.0 1.0	0.14 0.21	ug/L				
ND ND ND		1.0 1.0	0.21				12/15/14 13:43	1
ND ND ND		1.0		ua/l				
ND ND			0.17	uy/L			12/15/14 13:43	1
ND		4.0	0.17	ug/L			12/15/14 13:43	1
		1.0	0.28	ug/L			12/15/14 13:43	1
ND		1.0	0.24	ug/L			12/15/14 13:43	1
	J	1.0	0.19	ug/L			12/15/14 13:43	1
ND		1.0	0.25	ug/L			12/15/14 13:43	1
ND		1.0	0.13	ug/L			12/15/14 13:43	1
ND		1.0	0.19	ug/L			12/15/14 13:43	1
1.1		1.0	0.082	ug/L			12/15/14 13:43	1
ND		1.0	0.23	ug/L			12/15/14 13:43	1
ND		1.0	0.18	ug/L			12/15/14 13:43	1
ND		1.0	0.16	ug/L			12/15/14 13:43	1
ND		1.0	0.14	ug/L			12/15/14 13:43	1
ND		1.0	0.18	ug/L			12/15/14 13:43	1
ND		1.0	0.26	ug/L			12/15/14 13:43	1
ND	J	1.0	0.13	ug/L			12/15/14 13:43	1
ND		1.0	0.097	ug/L			12/15/14 13:43	1
ND		1.0	0.15	ug/L			12/15/14 13:43	1
ND		1.0	0.15	ug/L			12/15/14 13:43	1
ND		1.0	0.17	ug/L			12/15/14 13:43	1
ND		1.0	0.15	ug/L			12/15/14 13:43	1
ND		1.0	0.14	ug/L			12/15/14 13:43	1
ND		1.0	0.20	ug/L			12/15/14 13:43	1
ND		1.0	0.23	ug/L			12/15/14 13:43	1
%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
93		64 - 135			_		12/15/14 13:43	1
100		70 - 118					12/15/14 13:43	1
99		70 - 128					12/15/14 13:43	1
	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ND J ND ND ND ND ND ND ND ND ND ND ND ND ND	ND J 1.0 ND 1.0	ND J 1.0 0.19 ND 1.0 0.25 ND 1.0 0.13 ND 1.0 0.19 1.1 1.0 0.082 ND 1.0 0.23 ND 1.0 0.18 ND 1.0 0.16 ND 1.0 0.14 ND 1.0 0.18 ND 1.0 0.18 ND 1.0 0.18 ND 1.0 0.18 ND 1.0 0.15 ND 1.0 0.15 ND 1.0 0.15 ND 1.0 0.15 ND 1.0 0.15 ND 1.0 0.15 ND 1.0 0.15 ND 1.0 0.15 ND 1.0 0.15 ND 1.0 0.15 ND 1.0 0.15 ND 1.0 0.15 ND 1.0 0.15 ND 1.0 0.15 ND 1.0 0.20 ND 1.0 0.20 ND 1.0 0.23 **Recovery Qualifier Limits 93 64-135 100 70-118 99 70-128	ND J 1.0 0.19 ug/L ND 1.0 0.25 ug/L ND 1.0 0.13 ug/L ND 1.0 0.19 ug/L ND 1.0 0.19 ug/L 1.1 1.0 0.082 ug/L ND 1.0 0.23 ug/L ND 1.0 0.18 ug/L ND 1.0 0.16 ug/L ND 1.0 0.16 ug/L ND 1.0 0.18 ug/L ND 1.0 0.18 ug/L ND 1.0 0.18 ug/L ND 1.0 0.18 ug/L ND 1.0 0.18 ug/L ND 1.0 0.18 ug/L ND 1.0 0.19 ug/L ND 1.0 0.19 ug/L ND 1.0 0.15 ug/L ND 1.0 0.15 ug/L ND 1.0 0.15 ug/L ND 1.0 0.15 ug/L ND 1.0 0.15 ug/L ND 1.0 0.15 ug/L ND 1.0 0.12 ug/L ND 1.0 0.23 ug/L ND 1.0 0.23 ug/L ND 1.0 0.23 ug/L ND 1.0 0.23 ug/L **Recovery Qualifier Limits 93 64-135 100 70-118 99 70-128	ND J 1.0 0.19 ug/L ND 1.0 0.25 ug/L ND 1.0 0.13 ug/L ND 1.0 0.19 ug/L ND 1.0 0.19 ug/L 1.1 1.0 0.082 ug/L ND 1.0 0.23 ug/L ND 1.0 0.18 ug/L ND 1.0 0.16 ug/L ND 1.0 0.18 ug/L ND 1.0 0.18 ug/L ND 1.0 0.18 ug/L ND 1.0 0.18 ug/L ND 1.0 0.18 ug/L ND 1.0 0.18 ug/L ND 1.0 0.18 ug/L ND 1.0 0.18 ug/L ND 1.0 0.18 ug/L ND 1.0 0.15 ug/L ND 1.0 0.15 ug/L ND 1.0 0.15 ug/L ND 1.0 0.15 ug/L ND 1.0 0.15 ug/L ND 1.0 0.15 ug/L ND 1.0 0.15 ug/L ND 1.0 0.20 ug/L ND 1.0 0.23 ug/L ND 1.0 0.23 ug/L ND 1.0 0.23 ug/L ND 1.0 0.23 ug/L **Recovery Qualifier Limits 93 64-135 100 70-118 99 70-128	ND	ND J 1.0 0.19 ug/L 12/15/14 13:43 ND 1.0 0.25 ug/L 12/15/14 13:43 ND 1.0 0.13 ug/L 12/15/14 13:43 ND 1.0 0.19 ug/L 12/15/14 13:43 ND 1.0 0.19 ug/L 12/15/14 13:43 1.1 1.0 0.082 ug/L 12/15/14 13:43 ND 1.0 0.23 ug/L 12/15/14 13:43 ND 1.0 0.18 ug/L 12/15/14 13:43 ND 1.0 0.16 ug/L 12/15/14 13:43 ND 1.0 0.16 ug/L 12/15/14 13:43 ND 1.0 0.18 ug/L 12/15/14 13:43 ND 1.0 0.18 ug/L 12/15/14 13:43 ND 1.0 0.18 ug/L 12/15/14 13:43 ND 1.0 0.18 ug/L 12/15/14 13:43 ND 1.0 0.18 ug/L 12/15/14 13:43 ND 1.0 0.18 ug/L 12/15/14 13:43 ND 1.0 0.18 ug/L 12/15/14 13:43 ND 1.0 0.18 ug/L 12/15/14 13:43 ND 1.0 0.15 ug/L 12/15/14 13:43 ND 1.0 0.097 ug/L 12/15/14 13:43 ND 1.0 0.15 ug/L 12/15/14 13:43 ND 1.0 0.15 ug/L 12/15/14 13:43 ND 1.0 0.15 ug/L 12/15/14 13:43 ND 1.0 0.15 ug/L 12/15/14 13:43 ND 1.0 0.15 ug/L 12/15/14 13:43 ND 1.0 0.15 ug/L 12/15/14 13:43 ND 1.0 0.15 ug/L 12/15/14 13:43 ND 1.0 0.20 ug/L 12/15/14 13:43 ND 1.0 0.20 ug/L 12/15/14 13:43 ND 1.0 0.23 ug/L 12/15/14 13:43 ND 1.0 0.23 ug/L 12/15/14 13:43 ND 1.0 0.23 ug/L 12/15/14 13:43 ND 1.0 0.23 ug/L 12/15/14 13:43 ND 1.0 0.21 ug/L 12/15/14 13:43 ND 1.0 0.23 ug/L 12/15/14 13:43

Method: 8270C LL - Semivo	latile Organic Com	oounds by	GCMS - Low Le	vels					
Analyte	•	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND ND		0.93	0.051	ug/L		12/10/14 08:24	12/11/14 17:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	82		30 - 150				12/10/14 08:24	12/11/14 17:01	1
2-Fluorobiphenyl	74		30 - 150				12/10/14 08:24	12/11/14 17:01	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-4 Lab Sample ID: 180-39575-10

Date Collected: 12/04/14 09:55 Matrix: Water
Date Received: 12/05/14 18:40

Method: 8270C LL	- Semivolatile C	Organic Com	pounds by	GCMS - Low Levels ((Continued)	

:	Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2	2-Fluorophenol	55		30 - 150	12/10/14 08:24	12/11/14 17:01	1
1	Nitrobenzene-d5	72		30 - 150	12/10/14 08:24	12/11/14 17:01	1
1	Phenol-d5	57		30 - 150	12/10/14 08:24	12/11/14 17:01	1
:	Terphenyl-d14	61		10 - 150	12/10/14 08:24	12/11/14 17:01	1

1	Meth	າod:	300.0	- An	ions,	lon	C	nromat	tograph	าง
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Analyte	Result	Qualifier	RL	MDL	Unit	כ	Prepared	Analyzed	Dil Fac
Sulfate	79		1.0	0.21	ma/L			12/22/14 13:28	1

Method: 8315A - Carbonyl Compounds (HPLC)

	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
١	Formaldehyde	50 8.5	J UB	50	5.0	ug/L		12/05/14 10:51	12/08/14 14:16	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	2700		50	18	ug/L		12/09/14 15:47	12/10/14 15:38	10
p-Phenolsulfonic acid	220		50	8.4	ug/L		12/09/14 15:47	12/10/14 15:38	10
Benzenesulfonic acid	23	J	50	7.0	ug/L		12/09/14 15:47	12/10/14 15:38	10
Resorcinol	420		50	5.9	ug/L		12/09/14 15:47	12/10/14 15:38	10
2,3',4-Trihydroxydiphenyl	ND		50	16	ug/L		12/09/14 15:47	12/10/14 15:38	10

Client Sample ID: SG-3 Lab Sample ID: 180-39575-11

Date Collected: 12/04/14 10:20 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 17:33	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 17:33	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 17:33	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 17:33	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 17:33	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 17:33	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 17:33	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 17:33	1
1,2-Dichlorobenzene	1.5		1.0	0.15	ug/L			12/16/14 17:33	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 17:33	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 17:33	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 17:33	1
1,4-Dichlorobenzene	0.27	J	1.0	0.21	ug/L			12/16/14 17:33	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 17:33	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 17:33	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 17:33	1
Acetone	3.2	J	5.0	2.5	ug/L			12/16/14 17:33	1
Benzene	0.11	J	1.0	0.11	ug/L			12/16/14 17:33	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 17:33	1
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 17:33	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 17:33	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 17:33	1
Chlorobenzene	0.98	J	1.0	0.14	ug/L			12/16/14 17:33	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-3 Lab Sample ID: 180-39575-11

Date Collected: 12/04/14 10:20 Matrix: Water
Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 17:33	
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 17:33	
Chloroform	ND		1.0	0.17	ug/L			12/16/14 17:33	
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 17:33	•
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 17:33	
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 17:33	•
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 17:33	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 17:33	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 17:33	•
Ethyl ether	1.6		1.0	0.082	ug/L			12/16/14 17:33	•
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 17:33	
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 17:33	•
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 17:33	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 17:33	
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 17:33	
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 17:33	
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 17:33	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 17:33	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 17:33	1
Toluene	ND		1.0	0.15	ug/L			12/16/14 17:33	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 17:33	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 17:33	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 17:33	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 17:33	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 17:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		64 - 135					12/16/14 17:33	1
4-Bromofluorobenzene (Surr)	103		70 - 118					12/16/14 17:33	1
Dibromofluoromethane (Surr)	101		70 - 128					12/16/14 17:33	
Toluene-d8 (Surr) Method: 8270C LL - Semivolat Analyte	-	oounds by O		vels	llmi4	D	Prepared	12/16/14 17:33 Analyzed	Dil Fac
Phenol			RL	MDL	Unit				D
	ND		0.93	MDL 0.051	ug/L		12/10/14 08:24	12/11/14 18:25	
Surrogate	ND %Recovery	Qualifier					12/10/14 08:24 Prepared	12/11/14 18:25 Analyzed	
		Qualifier	0.93			<u>-</u>			Dil Fa
Surrogate	%Recovery		0.93				Prepared	Analyzed	Dil Fa
Surrogate 2,4,6-Tribromophenol	%Recovery 87		0.93 Limits 30 - 150			=	Prepared 12/10/14 08:24	Analyzed 12/11/14 18:25	Dil Fac
Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl	%Recovery 87 72		0.93 Limits 30 - 150 30 - 150			<u></u>	Prepared 12/10/14 08:24 12/10/14 08:24	Analyzed 12/11/14 18:25 12/11/14 18:25	Dil Fac
Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	%Recovery 87 72 64		0.93 Limits 30 - 150 30 - 150 30 - 150			<u>-</u> _	Prepared 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24	Analyzed 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25	Dil Fa
Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5	%Recovery 87 72 64 70		0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150			<u>-</u> _	Prepared 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24	Analyzed 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25	Dil Fac
Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5	%Recovery 87 72 64 70 67 62		0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150			<u>*</u>	Prepared 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24	Analyzed 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25	Dil Fac
Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14	%Recovery 87 72 64 70 67 62 hromatography		0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150		ug/L	<u>5</u>	Prepared 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24	Analyzed 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25	Dil Fac
Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Cl	%Recovery 87 72 64 70 67 62 hromatography		0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	0.051	ug/L		Prepared 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24	Analyzed 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25	Dil Fac
Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Cl	### ##################################	Qualifier	0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	0.051	ug/L Unit		Prepared 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24	Analyzed 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25	Dil Fac
Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Cl Analyte Sulfate	### ### ##############################	Qualifier	0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	0.051 MDL 0.21	Unit mg/L		Prepared 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24	Analyzed 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25 12/11/14 18:25	Dil Fac

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-3 Lab Sample ID: 180-39575-11

Date Collected: 12/04/14 10:20 Matrix: Water
Date Received: 12/05/14 18:40

Method: In-House - Sulfonic Acids by LCMS/MS										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
m-Benzenedisulfonic acid	3100		50	18	ug/L		12/09/14 15:47	12/10/14 16:21	10	
p-Phenolsulfonic acid	160		50	8.4	ug/L		12/09/14 15:47	12/10/14 16:21	10	
Benzenesulfonic acid	27	J	50	7.0	ug/L		12/09/14 15:47	12/10/14 16:21	10	
Resorcinol	440		50	5.9	ug/L		12/09/14 15:47	12/10/14 16:21	10	
2,3',4-Trihydroxydiphenyl	ND		50	16	ug/L		12/09/14 15:47	12/10/14 16:21	10	

Client Sample ID: DUP120414 Lab Sample ID: 180-39575-12

Date Collected: 12/04/14 00:00 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 17:57	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 17:57	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 17:57	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 17:57	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 17:57	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 17:57	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 17:57	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 17:57	1
1,2-Dichlorobenzene	1.4		1.0	0.15	ug/L			12/16/14 17:57	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 17:57	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 17:57	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 17:57	1
1,4-Dichlorobenzene	0.29	J	1.0	0.21	ug/L			12/16/14 17:57	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 17:57	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 17:57	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 17:57	1
Acetone	ND		5.0	2.5	ug/L			12/16/14 17:57	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 17:57	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 17:57	1
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 17:57	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 17:57	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 17:57	1
Chlorobenzene	0.97	J	1.0	0.14	ug/L			12/16/14 17:57	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 17:57	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 17:57	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 17:57	1
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 17:57	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 17:57	1
cis-1,3-Dichloropropene	ND		1.0	0.19	ug/L			12/16/14 17:57	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 17:57	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 17:57	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 17:57	1
Ethyl ether	1.6		1.0	0.082	ug/L			12/16/14 17:57	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 17:57	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 17:57	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 17:57	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 17:57	1
Methyl tert-butyl ether	ND		1.0	0.18	•			12/16/14 17:57	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: DUP120414

Lab Sample ID: 180-39575-12 Date Collected: 12/04/14 00:00

Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 17:57	
Methylene Chloride	ND		1.0	0.13	ug/L			12/16/14 17:57	
Styrene	ND		1.0	0.097	ug/L			12/16/14 17:57	
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 17:57	
Toluene	ND		1.0	0.15	ug/L			12/16/14 17:57	
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 17:57	
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 17:57	
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 17:57	
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 17:57	
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 17:57	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	108		64 - 135					12/16/14 17:57	-
4-Bromofluorobenzene (Surr)	103		70 - 118					12/16/14 17:57	
Dibromofluoromethane (Surr)	103		70 - 128					12/16/14 17:57	
Toluene-d8 (Surr)	100		71 - 118					12/16/14 17:57	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
Surragata	% Bookery	Qualifier	Limito				Branarad	Anglyzad	Dil Eo
2,4,6-Tribromophenol	102		30 - 150				12/10/14 08:24	12/11/14 18:49	
							12/10/11/00:21	12/11/17 10.73	
2-Fluorobiphenyl	79		30 - 150				12/10/14 08:24	12/11/14 18:49	
2-Fluorobiphenyl 2-Fluorophenol	79 65		30 ₋ 150 30 ₋ 150						
							12/10/14 08:24	12/11/14 18:49	
2-Fluorophenol	65		30 - 150				12/10/14 08:24 12/10/14 08:24	12/11/14 18:49 12/11/14 18:49	
2-Fluorophenol Nitrobenzene-d5	65 75		30 - 150 30 - 150				12/10/14 08:24 12/10/14 08:24 12/10/14 08:24	12/11/14 18:49 12/11/14 18:49 12/11/14 18:49	
2-Fluorophenol Nitrobenzene-d5 Phenol-d5	65 75 65 80 hromatography		30 - 150 30 - 150 30 - 150 10 - 150				12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24	12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49	
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C Analyte	65 75 65 80 hromatography Result	Qualifier	30 - 150 30 - 150 30 - 150 10 - 150	MDL		<u>D</u>	12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24	12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 Analyzed	Dil Fa
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C	65 75 65 80 hromatography	Qualifier	30 - 150 30 - 150 30 - 150 10 - 150	MDL 0.21	Unit mg/L	<u>D</u>	12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24	12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49	Dil Fa
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co	hromatography Result 80 mpounds (HPLC)		30 - 150 30 - 150 30 - 150 10 - 150 RL	0.21	mg/L		12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 Prepared	12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 Analyzed 12/21/14 00:57	Dil Fa
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co Analyte	hromatography Result 80 mpounds (HPLC) Result	Qualifier	30 - 150 30 - 150 30 - 150 10 - 150 RL	0.21 MDL	mg/L Unit	<u>D</u>	12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 Prepared	12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 Analyzed 12/21/14 00:57	Dil Fa
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C Analyte Sulfate	hromatography Result 80 mpounds (HPLC)	Qualifier	30 - 150 30 - 150 30 - 150 10 - 150 RL	0.21	mg/L		12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 Prepared	12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 Analyzed 12/21/14 00:57	Dil Fa
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde Method: In-House - Sulfonic A	hromatography Result 80 mpounds (HPLC) Result 50 9.1	Qualifier J UB	30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0	0.21 MDL 5.0	mg/L Unit ug/L	<u>D</u>	12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 Prepared Prepared 12/05/14 10:51	12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 Analyzed 12/21/14 00:57 Analyzed 12/08/14 15:15	Dil Fa
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde Method: In-House - Sulfonic A Analyte	hromatography Result 80 mpounds (HPLC) Result 50 9.1	Qualifier	30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0	0.21 MDL 5.0	mg/L Unit ug/L Unit		12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 Prepared Prepared 12/05/14 10:51 Prepared	12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 Analyzed 12/21/14 00:57 Analyzed 12/08/14 15:15 Analyzed	Dil Fa
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde Method: In-House - Sulfonic A Analyte m-Benzenedisulfonic acid	hromatography Result 80 mpounds (HPLC) Result 50 9.1 Acids by LCMS/M3 Result 2600	Qualifier J UB S Qualifier	30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0	0.21 MDL 5.0 MDL 18	mg/L Unit ug/L Unit ug/L	<u>D</u>	12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 Prepared Prepared 12/05/14 10:51 Prepared 12/09/14 15:47	12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 Analyzed 12/21/14 00:57 Analyzed 12/08/14 15:15 Analyzed 12/10/14 16:43	Dil Fa Dil Fa
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde Method: In-House - Sulfonic A Analyte m-Benzenedisulfonic acid p-Phenolsulfonic acid	hromatography Result 80 mpounds (HPLC) Result 50 9.1 Acids by LCMS/M3 Result 2600 160	Qualifier J UB Qualifier	30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0 RL 50 RL 50	0.21 MDL 5.0 MDL 18 8.4	Unit ug/L Unit ug/L ug/L ug/L	<u>D</u>	12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 Prepared Prepared 12/05/14 10:51 Prepared 12/09/14 15:47 12/09/14 15:47	12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 Analyzed 12/21/14 00:57 Analyzed 12/08/14 15:15 Analyzed 12/10/14 16:43 12/10/14 16:43	Dil Fa
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde Method: In-House - Sulfonic A Analyte m-Benzenedisulfonic acid p-Phenolsulfonic acid Benzenesulfonic acid	hromatography Result 80 mpounds (HPLC) Result 50 9.1 Acids by LCMS/M3 Result 2600 160	Qualifier J UB Qualifier	30 - 150 30 - 150 30 - 150 10 - 150 RL 50 RL 50 50	0.21 MDL 5.0 MDL 18 8.4 7.0	Unit ug/L Unit ug/L ug/L ug/L ug/L	<u>D</u>	12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 Prepared Prepared 12/05/14 10:51 Prepared 12/09/14 15:47 12/09/14 15:47	12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 Analyzed 12/21/14 00:57 Analyzed 12/08/14 15:15 Analyzed 12/10/14 16:43 12/10/14 16:43 12/10/14 16:43	Dil Fa
2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C Analyte Sulfate Method: 8315A - Carbonyl Co Analyte Formaldehyde Method: In-House - Sulfonic A Analyte m-Benzenedisulfonic acid p-Phenolsulfonic acid	hromatography Result 80 mpounds (HPLC) Result 50 9.1 Acids by LCMS/M3 Result 2600 160	Qualifier J UB Qualifier	30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0 RL 50 RL	0.21 MDL 5.0 MDL 18 8.4 7.0 5.9	Unit ug/L Unit ug/L ug/L ug/L	<u>D</u>	12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 12/10/14 08:24 Prepared Prepared 12/05/14 10:51 Prepared 12/09/14 15:47 12/09/14 15:47	12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 12/11/14 18:49 Analyzed 12/21/14 00:57 Analyzed 12/08/14 15:15 Analyzed 12/10/14 16:43 12/10/14 16:43	Dil Fa

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-8 Lab Sample ID: 180-39575-13

Date Collected: 12/04/14 10:45 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			12/16/14 18:45	
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			12/16/14 18:45	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			12/16/14 18:45	
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			12/16/14 18:45	
1,1-Dichloroethane	ND	1.0	0.12	ug/L			12/16/14 18:45	
1,1-Dichloroethene	ND	1.0	0.30	ug/L			12/16/14 18:45	
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			12/16/14 18:45	
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			12/16/14 18:45	
1,2-Dichlorobenzene	1.0	1.0	0.15	ug/L			12/16/14 18:45	
1,2-Dichloroethane	ND	1.0	0.21	ug/L			12/16/14 18:45	
1,2-Dichloropropane	ND	1.0	0.095	ug/L			12/16/14 18:45	
1,3-Dichlorobenzene	ND	1.0	0.11	ug/L			12/16/14 18:45	
1,4-Dichlorobenzene	ND	1.0	0.21	ug/L			12/16/14 18:45	
2-Butanone (MEK)	ND	5.0	0.55	ug/L			12/16/14 18:45	
2-Hexanone	ND	5.0	0.16	ug/L			12/16/14 18:45	
4-Methyl-2-pentanone (MIBK)	ND	5.0	0.53	ug/L			12/16/14 18:45	
Acetone	3.1 J	5.0	2.5	ug/L			12/16/14 18:45	
Benzene	ND	1.0	0.11	ug/L			12/16/14 18:45	
Bromoform	ND	1.0	0.19	ug/L			12/16/14 18:45	
Bromomethane	ND	1.0	0.31	ug/L			12/16/14 18:45	
Carbon disulfide	ND	1.0	0.21	ug/L			12/16/14 18:45	
Carbon tetrachloride	ND	1.0	0.14	ug/L			12/16/14 18:45	
Chlorobenzene	0.65 J	1.0	0.14	ug/L			12/16/14 18:45	
Chlorodibromomethane	ND	1.0	0.14	ug/L			12/16/14 18:45	
Chloroethane	ND	1.0	0.21	ug/L			12/16/14 18:45	
Chloroform	ND	1.0	0.17	ug/L			12/16/14 18:45	
Chloromethane	ND	1.0	0.28	ug/L			12/16/14 18:45	
cis-1,2-Dichloroethene	ND	1.0	0.24	ug/L			12/16/14 18:45	
cis-1,3-Dichloropropene	ND	1.0	0.19	ug/L			12/16/14 18:45	
Cyclohexane	ND	1.0	0.25	ug/L			12/16/14 18:45	
Dichlorobromomethane	ND	1.0	0.13	ug/L			12/16/14 18:45	
Dichlorodifluoromethane	ND	1.0	0.19	ug/L			12/16/14 18:45	
Ethyl ether	0.49 J	1.0	0.082	ug/L			12/16/14 18:45	
Ethylbenzene	ND	1.0	0.23	ug/L			12/16/14 18:45	
1,2-Dibromoethane	ND	1.0	0.18	ug/L			12/16/14 18:45	
sopropylbenzene	ND	1.0	0.16	ug/L			12/16/14 18:45	
Methyl acetate	ND	1.0	0.14	ug/L			12/16/14 18:45	
Methyl tert-butyl ether	ND	1.0	0.18	ug/L			12/16/14 18:45	
Methylcyclohexane	ND	1.0	0.26	ug/L			12/16/14 18:45	
Methylene Chloride	ND	1.0	0.13	ug/L			12/16/14 18:45	
Styrene	ND	1.0	0.097	ug/L			12/16/14 18:45	
Tetrachloroethene	ND	1.0	0.15	ug/L			12/16/14 18:45	
Toluene	ND	1.0	0.15	ug/L			12/16/14 18:45	
rans-1,2-Dichloroethene	ND	1.0		ug/L			12/16/14 18:45	
rans-1,3-Dichloropropene	ND	1.0	0.15	ug/L			12/16/14 18:45	
Frichloroethene	ND	1.0		ug/L			12/16/14 18:45	
Trichlorofluoromethane	ND	1.0		ug/L			12/16/14 18:45	
Vinyl chloride	ND	1.0		ug/L			12/16/14 18:45	

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Client Sample ID: SG-8 Lab Sample ID: 180-39575-13

Date Collected: 12/04/14 10:45 Matrix: Water

Date Received: 12/05/14 18:40

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105	64 - 135		12/16/14 18:45	1
4-Bromofluorobenzene (Surr)	109	70 - 118		12/16/14 18:45	1
Dibromofluoromethane (Surr)	104	70 - 128		12/16/14 18:45	1
Toluene-d8 (Surr)	100	71 - 118		12/16/14 18:45	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	0.50	J	0.93	0.051	ug/L		12/10/14 08:24	12/11/14 19:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	97		30 - 150				12/10/14 08:24	12/11/14 19:13	1
2-Fluorobiphenyl	78		30 - 150				12/10/14 08:24	12/11/14 19:13	1
2-Fluorophenol	68		30 - 150				12/10/14 08:24	12/11/14 19:13	1
Nitrobenzene-d5	74		30 - 150				12/10/14 08:24	12/11/14 19:13	1
Phenol-d5	71		30 - 150				12/10/14 08:24	12/11/14 19:13	1
Terphenyl-d14	68		10 - 150				12/10/14 08:24	12/11/14 19:13	1

Method: 300.0 - Anions, Ion Chromatography										
	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Sulfate	77		1.0	0.21	mg/L			12/21/14 01:32	1

Method: 8315A - Carbonyl Compo	unds (H	IPLC)								
Analyte		Result Q	ualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	50	7.0 J	UB	50	5.0	ug/L		12/05/14 10:51	12/08/14 15:27	1

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	190	50	18	ug/L		12/09/14 15:47	12/10/14 17:17	10
p-Phenolsulfonic acid	94	50	8.4	ug/L		12/09/14 15:47	12/10/14 17:17	10
Benzenesulfonic acid	ND	50	7.0	ug/L		12/09/14 15:47	12/10/14 17:17	10
Resorcinol	540	50	5.9	ug/L		12/09/14 15:47	12/10/14 17:17	10
2,3',4-Trihydroxydiphenyl	ND	50	16	ug/L		12/09/14 15:47	12/10/14 17:17	10

Client Sample ID: SW-1

Date Collected: 12/04/14 10:55

Lab Sample ID: 180-39575-14

Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 19:09	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 19:09	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 19:09	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 19:09	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 19:09	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 19:09	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 19:09	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 19:09	1
1,2-Dichlorobenzene	0.70	J	1.0	0.15	ug/L			12/16/14 19:09	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 19:09	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 19:09	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 19:09	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-1 Lab Sample ID: 180-39575-14

Analyte		(GC/MS) (Co Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 19:09	
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 19:09	
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 19:09	
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 19:09	
Acetone	ND		5.0	2.5	ug/L			12/16/14 19:09	
Benzene	ND		1.0	0.11	ug/L			12/16/14 19:09	
Bromoform	ND		1.0	0.19	ug/L			12/16/14 19:09	
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 19:09	
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 19:09	
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 19:09	
Chlorobenzene	0.32	J	1.0		ug/L			12/16/14 19:09	
Chlorodibromomethane	ND		1.0		ug/L			12/16/14 19:09	
Chloroethane	ND		1.0		ug/L			12/16/14 19:09	
Chloroform	ND		1.0	0.17				12/16/14 19:09	
Chloromethane	ND		1.0	0.28	-			12/16/14 19:09	
cis-1,2-Dichloroethene	ND		1.0	0.24				12/16/14 19:09	
cis-1,3-Dichloropropene	ND		1.0		ug/L			12/16/14 19:09	
Cyclohexane	ND		1.0	0.25				12/16/14 19:09	
Dichlorobromomethane	ND		1.0		ug/L			12/16/14 19:09	
Dichlorodifluoromethane	ND		1.0	0.19				12/16/14 19:09	
Ethyl ether	0.26	J	1.0	0.082	_			12/16/14 19:09	
Ethylbenzene	ND		1.0		ug/L			12/16/14 19:09	
1,2-Dibromoethane	ND		1.0	0.18				12/16/14 19:09	
Isopropylbenzene	ND		1.0		ug/L			12/16/14 19:09	
Methyl acetate	ND		1.0		ug/L			12/16/14 19:09	
Methyl tert-butyl ether	ND		1.0		ug/L			12/16/14 19:09	
Methylcyclohexane	ND		1.0		ug/L			12/16/14 19:09	
Methylene Chloride	ND		1.0		ug/L			12/16/14 19:09	
Styrene	ND		1.0	0.097				12/16/14 19:09	
Tetrachloroethene	ND		1.0		ug/L			12/16/14 19:09	
Toluene	ND		1.0		ug/L			12/16/14 19:09	
trans-1,2-Dichloroethene	ND		1.0		ug/L			12/16/14 19:09	
trans-1,3-Dichloropropene	ND		1.0		ug/L			12/16/14 19:09	
Trichloroethene	ND		1.0		ug/L ug/L			12/16/14 19:09	
Trichlorofluoromethane	ND ND		1.0		ug/L ug/L			12/16/14 19:09	
Vinyl chloride	ND		1.0		ug/L			12/16/14 19:09	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	103		64 - 135			=		12/16/14 19:09	
4-Bromofluorobenzene (Surr)	102		70 ₋ 118					12/16/14 19:09	
Dibromofluoromethane (Surr)	104		70 - 178 70 - 128					12/16/14 19:09	
Toluene-d8 (Surr)	98		71 - 118					12/16/14 19:09	

98		71 - 118					12/16/14 19:09	7
- Semivolatile Organic Com	oounds by G	CMS - Low I	Levels					
Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ND		0.93	0.051	ug/L		12/10/14 08:24	12/11/14 19:37	1
%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
102		30 - 150				12/10/14 08:24	12/11/14 19:37	1
90		30 - 150				12/10/14 08:24	12/11/14 19:37	1
	- Semivolatile Organic Comp Result ND %Recovery 102	- Semivolatile Organic Compounds by G Result Qualifier ND %Recovery Qualifier 102	- Semivolatile Organic Compounds by GCMS - Low I Result Qualifier RL ND 0.93 %Recovery Qualifier Limits 102 30 - 150	- Semivolatile Organic Compounds by GCMS - Low Levels Result Qualifier RL MDL ND 0.93 0.051 MRecovery Qualifier Limits 30 - 150	- Semivolatile Organic Compounds by GCMS - Low Levels Result Qualifier RL MDL Unit ND 0.93 0.051 ug/L **Recovery Qualifier Limits 102 30 - 150	- Semivolatile Organic Compounds by GCMS - Low Levels Result Qualifier RL MDL Unit Ug/L ND 0.93 0.051 ug/L **Recovery 1002 Qualifier Limits 30 - 150	- Semivolatile Organic Compounds by GCMS - Low Levels Result Qualifier RL MDL Unit Unit Iz/10/14 08:24	- Semivolatile Organic Compounds by GCMS - Low Levels Result Qualifier RL MDL Unit D Prepared 12/10/14 08:24 12/11/14 19:37

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-1 Lab Sample ID: 180-39575-14

Date Collected: 12/04/14 10:55 Matrix: Water

Date Received: 12/05/14 18:40

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol	79		30 - 150	12/10/14 08:24	12/11/14 19:37	1
Nitrobenzene-d5	88		30 - 150	12/10/14 08:24	12/11/14 19:37	1
Phenol-d5	80		30 - 150	12/10/14 08:24	12/11/14 19:37	1
Terphenyl-d14	79		10 - 150	12/10/14 08:24	12/11/14 19:37	1

Method:	300.0 - /	Anions, I	lon	Chromat	ogra	ohy	

Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	75	1.0	0.21 mg/L			12/21/14 02:07	1

Method: 8315A - Carbonyl Compounds (HPLC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	50 86	IIR	50	5.0	ua/l		12/05/14 10:51	12/08/14 15:39	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	88		50	18	ug/L		12/09/14 15:47	12/10/14 17:38	10
p-Phenolsulfonic acid	ND		50	8.4	ug/L		12/09/14 15:47	12/10/14 17:38	10
Benzenesulfonic acid	ND		50	7.0	ug/L		12/09/14 15:47	12/10/14 17:38	10
Resorcinol	450		50	5.9	ug/L		12/09/14 15:47	12/10/14 17:38	10
2,3',4-Trihydroxydiphenyl	ND		50	16	ug/L		12/09/14 15:47	12/10/14 17:38	10

Client Sample ID: SG-2 Lab Sample ID: 180-39575-15

Date Collected: 12/04/14 11:15 Matrix: Water

Date Received: 12/05/14 18:40

Chlorobenzene

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 19:34	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 19:34	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 19:34	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 19:34	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 19:34	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 19:34	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 19:34	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 19:34	1
1,2-Dichlorobenzene	0.69	J	1.0	0.15	ug/L			12/16/14 19:34	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 19:34	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 19:34	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 19:34	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 19:34	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 19:34	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 19:34	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 19:34	1
Acetone	ND		5.0	2.5	ug/L			12/16/14 19:34	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 19:34	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 19:34	1
Bromomethane	ND		1.0	0.31	ug/L			12/16/14 19:34	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 19:34	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 19:34	1

TestAmerica Pittsburgh

12/16/14 19:34

1.0

0.14 ug/L

0.18 J

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-2 Lab Sample ID: 180-39575-15

Date Collected: 12/04/14 11:15

Date Received: 12/05/14 18:40

Matrix: Water

	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
ND		1.0	0.14	ug/L			12/16/14 19:34	
ND		1.0	0.21	ug/L			12/16/14 19:34	
ND		1.0	0.17	ug/L			12/16/14 19:34	
ND		1.0	0.28	ug/L			12/16/14 19:34	
ND		1.0	0.24	ug/L			12/16/14 19:34	
ND		1.0	0.19	ug/L			12/16/14 19:34	
ND		1.0	0.25	ug/L			12/16/14 19:34	
ND		1.0	0.13	ug/L			12/16/14 19:34	
ND		1.0	0.19	ug/L			12/16/14 19:34	
0.17	J	1.0	0.082	ug/L			12/16/14 19:34	
ND		1.0	0.23	ug/L			12/16/14 19:34	
ND		1.0	0.18	ug/L			12/16/14 19:34	
ND		1.0	0.16	ug/L			12/16/14 19:34	
ND		1.0	0.14	ug/L			12/16/14 19:34	
ND		1.0	0.18	ug/L			12/16/14 19:34	
ND		1.0	0.26	ug/L			12/16/14 19:34	
ND		1.0	0.13	ug/L			12/16/14 19:34	
ND		1.0		_			12/16/14 19:34	
ND		1.0		•			12/16/14 19:34	
ND		1.0					12/16/14 19:34	
ND				_			12/16/14 19:34	
				•				
				•				
ND		1.0	0.23	ug/L			12/16/14 19:34	
%Recovery	Qualifier	l imite				Propared	Analyzed	Dil Fa
	- Quannon							
93		71 - 118					12/16/14 19:34	
le Organic Comp					_	_		
Result	Oounds by (Qualifier	RL	MDL		<u>D</u>	Prepared	Analyzed	Dil Fa
					<u>D</u>	Prepared 12/10/14 08:26	Analyzed 12/11/14 20:01	
Result	Qualifier	RL	MDL		<u>D</u>			Dil Fa
Result ND	Qualifier		MDL		<u>D</u>	12/10/14 08:26	12/11/14 20:01	Dil Fa
Result ND %Recovery	Qualifier	0.93 <i>Limits</i>	MDL		<u>D</u>	12/10/14 08:26 Prepared	12/11/14 20:01 Analyzed	Dil Fa
Result ND %Recovery 86	Qualifier	RL 0.93 Limits 30 - 150	MDL		<u>D</u>	12/10/14 08:26 Prepared 12/10/14 08:26	12/11/14 20:01 Analyzed 12/11/14 20:01	Dil Fa
Result ND %Recovery 86 83	Qualifier	RL 0.93 <i>Limits</i> 30 - 150 30 - 150	MDL		<u>D</u>	12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26	12/11/14 20:01 Analyzed 12/11/14 20:01 12/11/14 20:01	Dil Fa
Result ND	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150	MDL		<u>D</u>	12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:01 Analyzed 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01	Dil Fa
## Result ND ########	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150	MDL		D	12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:01 Analyzed 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01	Dil Fa
Result ND %Recovery 86 83 68 69 68 59	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150	MDL		<u>D</u>	12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:01 Analyzed 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01	Dil Fa
Result ND	Qualifier Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	MDL 0.051	ug/L		12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:01 Analyzed 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01	Dil Fa
Result ND	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	MDL 0.051	ug/L Unit	<u>D</u>	12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:01 Analyzed 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01	Dil Fa
Result ND	Qualifier Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	MDL 0.051	ug/L		12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:01 Analyzed 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01	Dil Fa
Result ND	Qualifier Qualifier Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	MDL 0.051	ug/L Unit		12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:01 Analyzed 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01 12/11/14 20:01	Dil Fa
	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ND 1.0 ND 1.0	ND 1.0 0.14 ND 1.0 0.21 ND 1.0 0.17 ND 1.0 0.28 ND 1.0 0.24 ND 1.0 0.19 ND 1.0 0.13 ND 1.0 0.13 ND 1.0 0.082 ND 1.0 0.082 ND 1.0 0.18 ND 1.0 0.16 ND 1.0 0.14 ND 1.0 0.14 ND 1.0 0.097 ND 1.0 0.097 ND 1.0 0.15 ND 1.0 0.20 ND 1.0 0.20 ND 1.0 0.20 ND 1.0 0.23 ND 1.0 0.20 ND 1.0 <t< td=""><td> ND</td><td> ND</td><td> ND</td><td> ND</td></t<>	ND	ND	ND	ND

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-2 Lab Sample ID: 180-39575-15

Date Collected: 12/04/14 11:15 Matrix: Water

Date Received: 12/05/14 18:40

Method: In-House - Sulfonic Ac								
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	88	50	18	ug/L		12/09/14 15:47	12/10/14 18:00	10
p-Phenolsulfonic acid	ND	50	8.4	ug/L		12/09/14 15:47	12/10/14 18:00	10
Benzenesulfonic acid	ND	50	7.0	ug/L		12/09/14 15:47	12/10/14 18:00	10
Resorcinol	390	50	5.9	ug/L		12/09/14 15:47	12/10/14 18:00	10
2,3',4-Trihydroxydiphenyl	ND	50	16	ug/L		12/09/14 15:47	12/10/14 18:00	10

Client Sample ID: SH-1 Lab Sample ID: 180-39575-16

Date Collected: 12/04/14 11:30 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 15:48	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 15:48	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 15:48	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 15:48	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 15:48	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 15:48	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 15:48	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 15:48	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			12/16/14 15:48	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 15:48	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 15:48	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 15:48	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 15:48	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 15:48	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 15:48	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 15:48	1
Acetone	ND		5.0	2.5	ug/L			12/16/14 15:48	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 15:48	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 15:48	1
Bromomethane	ND	J	1.0	0.31	ug/L			12/16/14 15:48	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 15:48	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 15:48	
Chlorobenzene	ND		1.0	0.14	ug/L			12/16/14 15:48	•
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 15:48	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 15:48	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 15:48	
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 15:48	
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 15:48	1
cis-1,3-Dichloropropene	ND	J	1.0	0.19	ug/L			12/16/14 15:48	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 15:48	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 15:48	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 15:48	1
Ethyl ether	0.10	J	1.0	0.082	ug/L			12/16/14 15:48	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 15:48	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 15:48	
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 15:48	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 15:48	
Methyl tert-butyl ether	ND		1.0	0.18	-			12/16/14 15:48	

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SH-1 Lab Sample ID: 180-39575-16

Date Collected: 12/04/14 11:30 Matrix: Water
Date Received: 12/05/14 18:40

_	-	(GC/MS) (Co				_	_		
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil F
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 15:48	
Methylene Chloride	ND	J	1.0		ug/L			12/16/14 15:48	
Styrene	ND		1.0	0.097				12/16/14 15:48	
Tetrachloroethene	ND		1.0		ug/L			12/16/14 15:48	
Toluene	ND		1.0		ug/L			12/16/14 15:48	
trans-1,2-Dichloroethene	ND		1.0		ug/L			12/16/14 15:48	
trans-1,3-Dichloropropene	ND		1.0		ug/L			12/16/14 15:48	
Trichloroethene	ND		1.0		ug/L			12/16/14 15:48	
Trichlorofluoromethane	ND		1.0		ug/L			12/16/14 15:48	
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 15:48	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
1,2-Dichloroethane-d4 (Surr)	99		64 - 135					12/16/14 15:48	-
4-Bromofluorobenzene (Surr)	101		70 - 118					12/16/14 15:48	
Dibromofluoromethane (Surr)	104		70 - 128					12/16/14 15:48	
Toluene-d8 (Surr)	101		71 - 118					12/16/14 15:48	
Surrogato	%Pacayary	Qualifier	l imite				Propared	Analyzod	Dil E
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
2,4,6-Tribromophenol	89	Qualifier	30 - 150				12/10/14 08:26	12/11/14 20:25	Dil F
2,4,6-Tribromophenol 2-Fluorobiphenyl	89 80	Qualifier	30 ₋ 150 30 ₋ 150				12/10/14 08:26 12/10/14 08:26	12/11/14 20:25 12/11/14 20:25	Dil F
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	89 80 63	Qualifier	30 - 150 30 - 150 30 - 150				12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25	Dil F
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5	89 80 63 74	Qualifier	30 - 150 30 - 150 30 - 150 30 - 150				12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25	Dil F
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	89 80 63	Qualifier	30 - 150 30 - 150 30 - 150				12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25	Dil F
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14	89 80 63 74 65 61	Qualifier	30 - 150 30 - 150 30 - 150 30 - 150 30 - 150				12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25	Dil F
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma	89 80 63 74 65 61	Qualifier Qualifier	30 - 150 30 - 150 30 - 150 30 - 150 30 - 150	MDL	Unit	D	12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25	
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14	89 80 63 74 65 61		30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150		Unit mg/L	D_	12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25	Dil Fa
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate	89 80 63 74 65 61 atography Result		30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150			<u>D</u>	12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25	
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compour	89 80 63 74 65 61 atography Result 74	Qualifier	30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL	0.21	mg/L		12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 Malyzed	Dil Fa
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compour Analyte	89 80 63 74 65 61 atography Result 74 nds (HPLC) Result	Qualifier Qualifier	30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL	0.21 MDL	mg/L Unit	D	12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 Prepared	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 Analyzed 12/22/14 15:22	Dil F
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compour Analyte	89 80 63 74 65 61 atography Result 74 nds (HPLC) Result	Qualifier	30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL	0.21 MDL	mg/L		12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 Malyzed	Dil F
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compour Analyte Formaldehyde Method: In-House - Sulfonic Acids b	89 80 63 74 65 61 atography Result 74 nds (HPLC) Result 50 14-	Qualifier Qualifier J UB	30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0	0.21 MDL 5.0	mg/L Unit ug/L	<u>D</u>	12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 Prepared Prepared 12/05/14 10:51	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 Analyzed 12/22/14 15:22 Analyzed 12/08/14 16:02	Dil F
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compour Analyte Formaldehyde Method: In-House - Sulfonic Acids b Analyte	89 80 63 74 65 61 atography Result 74 nds (HPLC) Result 50 14-	Qualifier Qualifier UB	30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 50	0.21 MDL 5.0	mg/L Unit ug/L Unit		12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 Prepared Prepared 12/05/14 10:51 Prepared	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 Analyzed 12/22/14 15:22 Analyzed 12/08/14 16:02	Dil F
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compour Analyte Formaldehyde Method: In-House - Sulfonic Acids b Analyte m-Benzenedisulfonic acid	89 80 63 74 65 61 atography Result 74 nds (HPLC) Result 50 14 by LCMS/MS Result 90	Qualifier Qualifier J UB	30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 50	0.21 MDL 5.0 MDL 18	mg/L Unit ug/L Unit ug/L	<u>D</u>	12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 Prepared Prepared 12/05/14 10:51 Prepared 12/09/14 15:47	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 Analyzed 12/22/14 15:22 Analyzed 12/08/14 16:02 Analyzed 12/10/14 18:33	Dil F
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compour Analyte Formaldehyde Method: In-House - Sulfonic Acids b Analyte m-Benzenedisulfonic acid p-Phenolsulfonic acid	89 80 63 74 65 61 atography Result 74 nds (HPLC) Result 50 14 by LCMS/MS Result 90 ND	Qualifier Qualifier J UB	30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0 RL 50 RL 50	0.21 MDL 5.0 MDL 18	mg/L Unit ug/L Unit	<u>D</u>	12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 Prepared Prepared 12/05/14 10:51 Prepared 12/09/14 15:47 12/09/14 15:47	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 Analyzed 12/22/14 15:22 Analyzed 12/08/14 16:02	Dil F
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compour Analyte Formaldehyde Method: In-House - Sulfonic Acids b	89 80 63 74 65 61 atography Result 74 nds (HPLC) Result 50 14 by LCMS/MS Result 90	Qualifier Qualifier J UB	30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 50 RL 50 50 50	0.21 MDL 5.0 MDL 18 8.4	mg/L Unit ug/L Unit ug/L	<u>D</u>	12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 Prepared Prepared 12/05/14 10:51 Prepared 12/09/14 15:47	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 Analyzed 12/22/14 15:22 Analyzed 12/08/14 16:02 Analyzed 12/10/14 18:33	Dil F
2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion Chroma Analyte Sulfate Method: 8315A - Carbonyl Compour Analyte Formaldehyde Method: In-House - Sulfonic Acids b Analyte m-Benzenedisulfonic acid p-Phenolsulfonic acid	89 80 63 74 65 61 atography Result 74 nds (HPLC) Result 50 14 by LCMS/MS Result 90 ND	Qualifier Qualifier J UB	30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150 RL 1.0 RL 50 RL 50	0.21 MDL 5.0 MDL 18 8.4 7.0	mg/L Unit ug/L Unit ug/L ug/L	<u>D</u>	12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 Prepared Prepared 12/05/14 10:51 Prepared 12/09/14 15:47 12/09/14 15:47	12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 12/11/14 20:25 Analyzed 12/22/14 15:22 Analyzed 12/08/14 16:02 Analyzed 12/10/14 18:33 12/10/14 18:33	Dil F

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-1 Lab Sample ID: 180-39575-17

Date Collected: 12/04/14 11:40

Date Received: 12/05/14 18:40

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 16:12	
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 16:12	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 16:12	
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 16:12	
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 16:12	
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 16:12	
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 16:12	
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			12/16/14 16:12	
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			12/16/14 16:12	
1,2-Dichloroethane	ND		1.0		ug/L			12/16/14 16:12	
1,2-Dichloropropane	ND		1.0	0.095	-			12/16/14 16:12	
1,3-Dichlorobenzene	ND		1.0		ug/L			12/16/14 16:12	
1,4-Dichlorobenzene	ND		1.0	0.21				12/16/14 16:12	
2-Butanone (MEK)	ND		5.0		ug/L			12/16/14 16:12	
2-Hexanone	ND		5.0		ug/L			12/16/14 16:12	
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			12/16/14 16:12	
Acetone	ND		5.0		ug/L			12/16/14 16:12	
Benzene	ND		1.0		-			12/16/14 16:12	
Bromoform	ND		1.0		ug/L			12/16/14 16:12	
Bromomethane	ND	J	1.0	0.31	ug/L			12/16/14 16:12	
Carbon disulfide	ND	,	1.0	0.21	-			12/16/14 16:12	
Carbon tetrachloride	ND		1.0		ug/L			12/16/14 16:12	
Chlorobenzene	ND		1.0		ug/L			12/16/14 16:12	
Chlorodibromomethane	ND		1.0		ug/L			12/16/14 16:12	
Chloroethane	ND		1.0	0.21				12/16/14 16:12	
Chloroform	ND		1.0		ug/L ug/L			12/16/14 16:12	
Chloromethane	ND		1.0		ug/L ug/L			12/16/14 16:12	
cis-1,2-Dichloroethene	ND		1.0		ug/L ug/L			12/16/14 16:12	
cis-1,3-Dichloropropene	ND ND	1	1.0		ug/L ug/L			12/16/14 16:12	
Cyclohexane	ND	,	1.0		ug/L ug/L			12/16/14 16:12	
Dichlorobromomethane	ND ND		1.0		ug/L ug/L			12/16/14 16:12	
Dichlorodifluoromethane	ND ND		1.0		ug/L ug/L			12/16/14 16:12	
	ND ND		1.0	0.19	-			12/16/14 16:12	
Ethyl ether Ethylbenzene	ND ND		1.0		ug/L ug/L			12/16/14 16:12	
1,2-Dibromoethane	ND ND		1.0		ug/L ug/L			12/16/14 16:12	
	ND ND		1.0					12/16/14 16:12	
sopropylbenzene					ug/L				
Methyl tert but lether	ND		1.0		ug/L			12/16/14 16:12	
Methyl tert-butyl ether	ND		1.0		ug/L			12/16/14 16:12	
Methylcyclohexane	ND	γ	1.0		ug/L			12/16/14 16:12	
Methylene Chloride	ND	J	1.0		ug/L			12/16/14 16:12	
Styrene	ND		1.0	0.097	-			12/16/14 16:12	
Tetrachloroethene	ND		1.0		ug/L			12/16/14 16:12	
Toluene	ND		1.0		ug/L			12/16/14 16:12	
rans-1,2-Dichloroethene	ND		1.0		ug/L			12/16/14 16:12	
rans-1,3-Dichloropropene	ND		1.0		ug/L			12/16/14 16:12	
Trichloroethene	ND		1.0		ug/L			12/16/14 16:12	
Trichlorofluoromethane	ND ND		1.0 1.0		ug/L ug/L			12/16/14 16:12 12/16/14 16:12	

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-1 Lab Sample ID: 180-39575-17

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99	64 - 135		12/16/14 16:12	1
4-Bromofluorobenzene (Surr)	99	70 - 118		12/16/14 16:12	1
Dibromofluoromethane (Surr)	104	70 ₋ 128		12/16/14 16:12	1
Toluene-d8 (Surr)	102	71 - 118		12/16/14 16:12	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/10/14 08:26	12/11/14 20:49	•
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
2,4,6-Tribromophenol	80		30 - 150				12/10/14 08:26	12/11/14 20:49	
2-Fluorobiphenyl	73		30 - 150				12/10/14 08:26	12/11/14 20:49	
2-Fluorophenol	65		30 - 150				12/10/14 08:26	12/11/14 20:49	:
Nitrobenzene-d5	72		30 - 150				12/10/14 08:26	12/11/14 20:49	
Phenol-d5	68		30 - 150				12/10/14 08:26	12/11/14 20:49	
Terphenyl-d14	51		10 - 150				12/10/14 08:26	12/11/14 20:49	
Method: 300.0 - Anions, Ion	Chromatography								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	74		1.0	0.21	mg/L			12/22/14 15:39	1
Method: 8315A - Carbonyl C	ompounds (HPLC)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde		UB UB	50	5.0	ug/L		12/05/14 10:51	12/08/14 16:14	

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	81	50	18	ug/L		12/09/14 15:47	12/10/14 18:55	10
p-Phenolsulfonic acid	ND	50	8.4	ug/L		12/09/14 15:47	12/10/14 18:55	10
Benzenesulfonic acid	ND	50	7.0	ug/L		12/09/14 15:47	12/10/14 18:55	10
Resorcinol	ND	50	5.9	ug/L		12/09/14 15:47	12/10/14 18:55	10
2,3',4-Trihydroxydiphenyl	ND	50	16	ug/L		12/09/14 15:47	12/10/14 18:55	10

Client Sample ID: SG-6 Lab Sample ID: 180-39575-18

Date Collected: 12/04/14 13:00 Matrix: Water
Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 16:36	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 16:36	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 16:36	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 16:36	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 16:36	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 16:36	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 16:36	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 16:36	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			12/16/14 16:36	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 16:36	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 16:36	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 16:36	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-6 Lab Sample ID: 180-39575-18

Date Collected: 12/04/14 13:00 Matrix: Water
Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 16:36	1
2-Butanone (MEK)	ND		5.0	0.55	ug/L			12/16/14 16:36	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 16:36	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 16:36	1
Acetone	ND		5.0	2.5	ug/L			12/16/14 16:36	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 16:36	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 16:36	1
Bromomethane	ND	J	1.0	0.31	ug/L			12/16/14 16:36	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 16:36	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 16:36	1
Chlorobenzene	ND		1.0	0.14	ug/L			12/16/14 16:36	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 16:36	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 16:36	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 16:36	1
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 16:36	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 16:36	1
cis-1,3-Dichloropropene	ND	J	1.0	0.19	ug/L			12/16/14 16:36	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 16:36	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 16:36	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 16:36	1
Ethyl ether	ND		1.0	0.082	ug/L			12/16/14 16:36	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 16:36	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 16:36	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 16:36	1
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 16:36	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 16:36	1
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 16:36	1
Methylene Chloride	ND	J	1.0	0.13	ug/L			12/16/14 16:36	1
Styrene	ND		1.0	0.097	ug/L			12/16/14 16:36	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 16:36	1
Toluene	ND		1.0	0.15	ug/L			12/16/14 16:36	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 16:36	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 16:36	1
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 16:36	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 16:36	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 16:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		64 - 135			-		12/16/14 16:36	1
4-Bromofluorobenzene (Surr)	96		70 - 118					12/16/14 16:36	1
Dibromofluoromethane (Surr)	102		70 - 128					12/16/14 16:36	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.93	0.051	ug/L		12/10/14 08:26	12/11/14 21:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	66		30 - 150				12/10/14 08:26	12/11/14 21:13	1
2-Fluorobiphenyl	56		30 - 150				12/10/14 08:26	12/11/14 21:13	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SG-6 Lab Sample ID: 180-39575-18

Date Collected: 12/04/14 13:00 Matrix: Water

Date Received: 12/05/14 18:40

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prep	ared	Analyzed	Dil Fac
2-Fluorophenol	50		30 - 150	12/10/1	4 08:26	12/11/14 21:13	1
Nitrobenzene-d5	55		30 - 150	12/10/1	4 08:26	12/11/14 21:13	1
Phenol-d5	49		30 - 150	12/10/1	4 08:26	12/11/14 21:13	1
Terphenyl-d14	44		10 - 150	12/10/1	4 08:26	12/11/14 21:13	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	75	1.0	0.21 mg/L			12/22/14 15:57	1

Method: 8315A - Carbonyl Compounds (HPLC)

Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	50 12 LIB	50	5.0 ug/l		12/05/14 10:51	12/08/14 16:26	1

Method: In-House - Sulfonic Acids by LCMS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	81		50	18	ug/L		12/09/14 15:47	12/10/14 19:17	10
p-Phenolsulfonic acid	ND		50	8.4	ug/L		12/09/14 15:47	12/10/14 19:17	10
Benzenesulfonic acid	ND		50	7.0	ug/L		12/09/14 15:47	12/10/14 19:17	10
Resorcinol	ND		50	5.9	ug/L		12/09/14 15:47	12/10/14 19:17	10
2,3',4-Trihydroxydiphenyl	ND		50	16	ug/L		12/09/14 15:47	12/10/14 19:17	10

Client Sample ID: SW-2_LANGAN

Date Collected: 12/04/14 13:10 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			12/16/14 17:00	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			12/16/14 17:00	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			12/16/14 17:00	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			12/16/14 17:00	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			12/16/14 17:00	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			12/16/14 17:00	1
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			12/16/14 17:00	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			12/16/14 17:00	1
1,2-Dichlorobenzene	ND	1.0	0.15	ug/L			12/16/14 17:00	1
1,2-Dichloroethane	ND	1.0	0.21	ug/L			12/16/14 17:00	1
1,2-Dichloropropane	ND	1.0	0.095	ug/L			12/16/14 17:00	1
1,3-Dichlorobenzene	ND	1.0	0.11	ug/L			12/16/14 17:00	1
1,4-Dichlorobenzene	ND	1.0	0.21	ug/L			12/16/14 17:00	1
2-Butanone (MEK)	ND	5.0	0.55	ug/L			12/16/14 17:00	1
2-Hexanone	ND	5.0	0.16	ug/L			12/16/14 17:00	1
4-Methyl-2-pentanone (MIBK)	ND	5.0	0.53	ug/L			12/16/14 17:00	1
Acetone	ND	5.0	2.5	ug/L			12/16/14 17:00	1
Benzene	ND	1.0	0.11	ug/L			12/16/14 17:00	1
Bromoform	ND	1.0	0.19	ug/L			12/16/14 17:00	1
Bromomethane	ND J	1.0	0.31	ug/L			12/16/14 17:00	1
Carbon disulfide	ND	1.0	0.21	ug/L			12/16/14 17:00	1
Carbon tetrachloride	ND	1.0	0.14	ug/L			12/16/14 17:00	1
Chlorobenzene	ND	1.0	0.14	ug/L			12/16/14 17:00	1

TestAmerica Pittsburgh

Lab Sample ID: 180-39575-19

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Cheff Sample ID: 5W-2 LANGAR	mple ID: SW-2_LANGAN
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Lab Sample ID: 180-39575-19 Date Collected: 12/04/14 13:10 Matrix: Water

Date Received: 12/05/14 18:40

Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 17:00	
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 17:00	
Chloroform	ND		1.0	0.17	ug/L			12/16/14 17:00	
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 17:00	
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 17:00	
cis-1,3-Dichloropropene	ND	J	1.0	0.19	ug/L			12/16/14 17:00	
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 17:00	
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 17:00	
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 17:00	
Ethyl ether	ND		1.0	0.082	ug/L			12/16/14 17:00	
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 17:00	
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/16/14 17:00	•
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 17:00	
Methyl acetate	ND		1.0	0.14	ug/L			12/16/14 17:00	
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/16/14 17:00	
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 17:00	
Methylene Chloride	ND	J	1.0	0.13	ug/L			12/16/14 17:00	
Styrene	ND		1.0	0.097	ug/L			12/16/14 17:00	
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 17:00	
Toluene	ND		1.0	0.15	ug/L			12/16/14 17:00	
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 17:00	
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 17:00	
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 17:00	· · · · · · · .
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 17:00	
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 17:00	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	98		64 - 135					12/16/14 17:00	
4-Bromofluorobenzene (Surr)	94		70 - 118					12/16/14 17:00	
Dibromofluoromethane (Surr) Toluene-d8 (Surr)	104 98		70 - 128 71 - 118					12/16/14 17:00 12/16/14 17:00	
Method: 8270C LL - Semivola									
Analyte		Qualifier	CMS - Low Le RL 0.93	vels MDL 0.051		<u>D</u>	Prepared 12/10/14 08:26	Analyzed 12/11/14 21:37	
Analyte Phenol	Result ND	Qualifier		MDL		<u>D</u>	12/10/14 08:26	12/11/14 21:37	
Analyte Phenol Surrogate	Result ND %Recovery	Qualifier	RL 0.93	MDL		<u>D</u>	12/10/14 08:26 Prepared	12/11/14 21:37 Analyzed	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol	Result ND %Recovery 74	Qualifier	RL 0.93 Limits 30 - 150	MDL		<u>D</u>	12/10/14 08:26 Prepared 12/10/14 08:26	12/11/14 21:37 Analyzed 12/11/14 21:37	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl	Result ND %Recovery 74 64	Qualifier	RL 0.93 <i>Limits</i> 30 - 150 30 - 150	MDL		<u>D</u>	12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26	12/11/14 21:37 Analyzed 12/11/14 21:37 12/11/14 21:37	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	### Result ND #### #### #### #### #### #### ##### ######	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150	MDL		<u>D</u>	12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 21:37 Analyzed 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5	### Result ND #### ND ###########################	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150	MDL		<u>D</u>	12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 21:37 Analyzed 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5	## Result ND ##### ND ###### ND ########	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150	MDL		<u>D</u>	12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 21:37 Analyzed 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5	### Result ND #### ND ###########################	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150	MDL		<u>D</u>	12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 21:37 Analyzed 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol	Result ND %Recovery 74 64 52 59 54 68	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150	MDL		<u>D</u>	12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 21:37 Analyzed 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C	Result ND %Recovery 74 64 52 59 54 68 hromatography	Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150	MDL 0.051	ug/L Unit	<u>D</u>	12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 21:37 Analyzed 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14	Result ND %Recovery 74 64 52 59 54 68 hromatography	Qualifier Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	MDL 0.051	ug/L		12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 21:37 Analyzed 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37	Dil Fa
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C Analyte Sulfate	Result ND %Recovery 74 64 52 59 54 68 hromatography Result 75 75 75 75 75 75	Qualifier Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	MDL 0.051	ug/L Unit		12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 21:37 Analyzed 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37	Dil Fac
Analyte Phenol Surrogate 2,4,6-Tribromophenol 2-Fluorobiphenyl 2-Fluorophenol Nitrobenzene-d5 Phenol-d5 Terphenyl-d14 Method: 300.0 - Anions, Ion C Analyte	## Result ND ### Recovery 74	Qualifier Qualifier	RL 0.93 Limits 30 - 150 30 - 150 30 - 150 30 - 150 10 - 150	MDL 0.051	ug/L Unit mg/L		12/10/14 08:26 Prepared 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26 12/10/14 08:26	12/11/14 21:37 Analyzed 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37 12/11/14 21:37	Dil Fac

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-2_LANGAN

Lab Sample ID: 180-39575-19 Date Collected: 12/04/14 13:10 **Matrix: Water**

Date Received: 12/05/14 18:40

Method: In-House - Sulfonic Ac	ids by LCMS/MS							
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	86	50	18	ug/L		12/09/14 15:47	12/10/14 19:50	10
p-Phenolsulfonic acid	ND	50	8.4	ug/L		12/09/14 15:47	12/10/14 19:50	10
Benzenesulfonic acid	ND	50	7.0	ug/L		12/09/14 15:47	12/10/14 19:50	10
Resorcinol	ND	50	5.9	ug/L		12/09/14 15:47	12/10/14 19:50	10
2,3',4-Trihydroxydiphenyl	ND	50	16	ug/L		12/09/14 15:47	12/10/14 19:50	10

Client Sample ID: SW-1_LANGAN

Lab Sample ID: 180-39575-20 Date Collected: 12/04/14 13:20 Matrix: Water

Date Received: 12/05/14 18:40

Analyte	Result C	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			12/16/14 17:24	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.20	ug/L			12/16/14 17:24	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.32	ug/L			12/16/14 17:24	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			12/16/14 17:24	1
1,1-Dichloroethane	ND		1.0	0.12	ug/L			12/16/14 17:24	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/16/14 17:24	1
1,2,4-Trichlorobenzene	ND		1.0	0.27	ug/L			12/16/14 17:24	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.14	ug/L			12/16/14 17:24	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			12/16/14 17:24	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			12/16/14 17:24	1
1,2-Dichloropropane	ND		1.0	0.095	ug/L			12/16/14 17:24	1
1,3-Dichlorobenzene	ND		1.0	0.11	ug/L			12/16/14 17:24	1
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/16/14 17:24	1
2-Butanone (MEK)	ND		5.0		ug/L			12/16/14 17:24	1
2-Hexanone	ND		5.0	0.16	ug/L			12/16/14 17:24	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	ug/L			12/16/14 17:24	1
Acetone	ND		5.0	2.5	ug/L			12/16/14 17:24	1
Benzene	ND		1.0	0.11	ug/L			12/16/14 17:24	1
Bromoform	ND		1.0	0.19	ug/L			12/16/14 17:24	1
Bromomethane	ND J		1.0	0.31	ug/L			12/16/14 17:24	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/16/14 17:24	1
Carbon tetrachloride	ND		1.0	0.14	ug/L			12/16/14 17:24	1
Chlorobenzene	ND		1.0	0.14	ug/L			12/16/14 17:24	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/16/14 17:24	1
Chloroethane	ND		1.0	0.21	ug/L			12/16/14 17:24	1
Chloroform	ND		1.0	0.17	ug/L			12/16/14 17:24	1
Chloromethane	ND		1.0	0.28	ug/L			12/16/14 17:24	1
cis-1,2-Dichloroethene	ND		1.0	0.24	ug/L			12/16/14 17:24	1
cis-1,3-Dichloropropene	ND J		1.0	0.19	ug/L			12/16/14 17:24	1
Cyclohexane	ND		1.0	0.25	ug/L			12/16/14 17:24	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/16/14 17:24	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/16/14 17:24	1
Ethyl ether	ND		1.0	0.082	ug/L			12/16/14 17:24	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/16/14 17:24	1
1,2-Dibromoethane	ND		1.0	0.18				12/16/14 17:24	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/16/14 17:24	1
Methyl acetate	ND		1.0		ug/L			12/16/14 17:24	 1
Methyl tert-butyl ether	ND		1.0		ug/L			12/16/14 17:24	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: SW-1_LANGAN

Lab Sample ID: 180-39575-20

Date Collected: 12/04/14 13:20 **Matrix: Water** Date Received: 12/05/14 18:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylcyclohexane	ND		1.0	0.26	ug/L			12/16/14 17:24	
Methylene Chloride	ND	J	1.0	0.13	ug/L			12/16/14 17:24	
Styrene	ND		1.0	0.097	ug/L			12/16/14 17:24	
Tetrachloroethene	ND		1.0	0.15	ug/L			12/16/14 17:24	
Toluene	ND		1.0	0.15	ug/L			12/16/14 17:24	
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/16/14 17:24	
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/16/14 17:24	
Trichloroethene	ND		1.0	0.14	ug/L			12/16/14 17:24	
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/16/14 17:24	
Vinyl chloride	ND		1.0	0.23	ug/L			12/16/14 17:24	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	95		64 - 135					12/16/14 17:24	-
4-Bromofluorobenzene (Surr)	103		70 - 118					12/16/14 17:24	
Dibromofluoromethane (Surr)	106		70 - 128					12/16/14 17:24	
Toluene-d8 (Surr)	105		71 - 118					12/16/14 17:24	
Method: 8270C LL - Semivolatile Org	anic Com	oounds by (GCMS - Low Le	vels					
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Phenol	ND		0.93	0.051	ug/L		12/10/14 08:26	12/11/14 22:01	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
2,4,6-Tribromophenol	96		30 - 150				12/10/14 08:26	12/11/14 22:01	
2-Fluorobiphenyl	89		30 - 150				12/10/14 08:26	12/11/14 22:01	
2-Fluorophenol	67		30 - 150				12/10/14 08:26	12/11/14 22:01	
Nitrobenzene-d5	78		30 - 150				12/10/14 08:26	12/11/14 22:01	
Phenol-d5	70		30 - 150				12/10/14 08:26	12/11/14 22:01	
Terphenyl-d14	81		10 - 150				12/10/14 08:26	12/11/14 22:01	
Method: 300.0 - Anions, Ion Chromat	tography								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Sulfate	75		1.0	0.21	mg/L			12/22/14 17:06	
Method: 8315A - Carbonyl Compoun	ds (HPLC)								
Analyto	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Analyte		⊸ UB	50	5.0	ug/L		12/05/14 10:51	12/08/14 16:50	
Formaldehyde	50 13	•							
Formaldehyde									
Formaldehyde Method: In-House - Sulfonic Acids b	y LCMS/M		RL		Unit	D	Prepared	Analyzed	Dil Fa
Formaldehyde Method: In-House - Sulfonic Acids by Analyte	y LCMS/M	S	RL		Unit ug/L	<u>D</u>	Prepared 12/09/14 15:47	Analyzed 12/10/14 20:12	
Formaldehyde Method: In-House - Sulfonic Acids by Analyte m-Benzenedisulfonic acid	y LCMS/M Result	S		18		<u>D</u>			1
Method: In-House - Sulfonic Acids by Analyte m-Benzenedisulfonic acid p-Phenolsulfonic acid	y LCMS/M Result	S	50	18 8.4	ug/L	<u>D</u>	12/09/14 15:47	12/10/14 20:12	1
	y LCMS/M Result 81	S	50 50	18 8.4 7.0	ug/L ug/L	<u>D</u>	12/09/14 15:47 12/09/14 15:47	12/10/14 20:12 12/10/14 20:12	Dil Fa 10 10 11

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: FB120414

Lab Sample ID: 180-39575-21 Date Collected: 12/04/14 14:40 **Matrix: Water**

Date Received: 12/05/14 18:40

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			12/16/14 13:08	
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			12/16/14 13:08	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			12/16/14 13:08	
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			12/16/14 13:08	
1,1-Dichloroethane	ND	1.0	0.12	ug/L			12/16/14 13:08	
1,1-Dichloroethene	ND	1.0	0.30	ug/L			12/16/14 13:08	
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			12/16/14 13:08	
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			12/16/14 13:08	
1,2-Dichlorobenzene	ND	1.0	0.15	ug/L			12/16/14 13:08	
1,2-Dichloroethane	ND	1.0	0.21	ug/L			12/16/14 13:08	
1,2-Dichloropropane	ND	1.0	0.095	ug/L			12/16/14 13:08	
1,3-Dichlorobenzene	ND	1.0	0.11	ug/L			12/16/14 13:08	
1,4-Dichlorobenzene	ND	1.0	0.21	ug/L			12/16/14 13:08	
2-Butanone (MEK)	ND	5.0	0.55	ug/L			12/16/14 13:08	
2-Hexanone	ND	5.0	0.16	ug/L			12/16/14 13:08	
4-Methyl-2-pentanone (MIBK)	ND	5.0	0.53	ug/L			12/16/14 13:08	
Acetone	ND	5.0	2.5	ug/L			12/16/14 13:08	
Benzene	ND	1.0	0.11	ug/L			12/16/14 13:08	
Bromoform	ND	1.0	0.19	ug/L			12/16/14 13:08	
Bromomethane	ND	1.0	0.31	ug/L			12/16/14 13:08	
Carbon disulfide	ND	1.0	0.21	ug/L			12/16/14 13:08	
Carbon tetrachloride	ND	1.0	0.14	ug/L			12/16/14 13:08	
Chlorobenzene	ND	1.0	0.14	ug/L			12/16/14 13:08	
Chlorodibromomethane	ND	1.0	0.14	ug/L			12/16/14 13:08	
Chloroethane	ND	1.0	0.21	ug/L			12/16/14 13:08	
Chloroform	ND	1.0	0.17	ug/L			12/16/14 13:08	
Chloromethane	ND	1.0	0.28	ug/L			12/16/14 13:08	
cis-1,2-Dichloroethene	ND	1.0	0.24	ug/L			12/16/14 13:08	
cis-1,3-Dichloropropene	ND	1.0	0.19	ug/L			12/16/14 13:08	
Cyclohexane	ND	1.0	0.25	ug/L			12/16/14 13:08	
Dichlorobromomethane	ND	1.0	0.13	ug/L			12/16/14 13:08	
Dichlorodifluoromethane	ND	1.0	0.19	ug/L			12/16/14 13:08	
Ethyl ether	ND	1.0	0.082	ug/L			12/16/14 13:08	
Ethylbenzene	ND	1.0	0.23	ug/L			12/16/14 13:08	
1,2-Dibromoethane	ND	1.0	0.18	ug/L			12/16/14 13:08	
Isopropylbenzene	ND	1.0		ug/L			12/16/14 13:08	
Methyl acetate	ND	1.0	0.14	ug/L			12/16/14 13:08	
Methyl tert-butyl ether	ND	1.0		ug/L			12/16/14 13:08	
Methylcyclohexane	ND	1.0		ug/L			12/16/14 13:08	
Methylene Chloride	ND	1.0	0.13	ug/L			12/16/14 13:08	
Styrene	ND	1.0	0.097				12/16/14 13:08	
Tetrachloroethene	ND	1.0	0.15				12/16/14 13:08	
Toluene	ND	1.0		ug/L			12/16/14 13:08	
rans-1,2-Dichloroethene	ND	1.0		ug/L			12/16/14 13:08	
trans-1,3-Dichloropropene	ND	1.0	0.15				12/16/14 13:08	
Trichloroethene	ND	1.0		ug/L			12/16/14 13:08	
Trichlorofluoromethane	ND	1.0		ug/L			12/16/14 13:08	
Vinyl chloride	ND	1.0		ug/L			12/16/14 13:08	

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: FB120414 Lab Sample ID: 180-39575-21

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Date Collected: 12/04/14 14:40 **Matrix: Water**

Date Received: 12/05/14 18:40

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97	64 - 135		12/16/14 13:08	1
4-Bromofluorobenzene (Surr)	112	70 - 118		12/16/14 13:08	1
Dibromofluoromethane (Surr)	102	70 - 128		12/16/14 13:08	1
Toluene-d8 (Surr)	101	71 - 118		12/16/14 13:08	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		0.96	0.053	ug/L		12/10/14 08:26	12/11/14 22:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	65		30 - 150				12/10/14 08:26	12/11/14 22:25	1
2-Fluorobiphenyl	49		30 - 150				12/10/14 08:26	12/11/14 22:25	1
2-Fluorophenol	40		30 - 150				12/10/14 08:26	12/11/14 22:25	1
Nitrobenzene-d5	48		30 - 150				12/10/14 08:26	12/11/14 22:25	1
Phenol-d5	41		30 - 150				12/10/14 08:26	12/11/14 22:25	1
Terphenyl-d14	66		10 - 150				12/10/14 08:26	12/11/14 22:25	1

Method: 300.0 - Anions, Ion Chromatography										
	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Sulfate	ND		1.0	0.21	mg/L			12/22/14 17:23	1

Method: 8315A - Carbonyl Compounds (HPLC)										
	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Formaldehyde	5.0	J	50	5.0	ug/L		12/05/14 10:51	12/08/14 17:01	1

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Benzenedisulfonic acid	ND ND	50	18	ug/L		12/09/14 15:47	12/10/14 20:34	10
p-Phenolsulfonic acid	ND	50	8.4	ug/L		12/09/14 15:47	12/10/14 20:34	10
Benzenesulfonic acid	ND	50	7.0	ug/L		12/09/14 15:47	12/10/14 20:34	10
Resorcinol	ND	50	5.9	ug/L		12/09/14 15:47	12/10/14 20:34	10
2,3',4-Trihydroxydiphenyl	ND	50	16	ug/L		12/09/14 15:47	12/10/14 20:34	10

Client Sample ID: TRIP BLANK Lab Sample ID: 180-39575-22 Date Collected: 12/04/14 00:00 **Matrix: Water**

Date Received: 12/05/14 18:40

Analyte	Result Qu	ualifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	1.0	0.29	ug/L			12/15/14 14:07	1
1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/L			12/15/14 14:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	1.0	0.32	ug/L			12/15/14 14:07	1
1,1,2-Trichloroethane	ND	1.0	0.20	ug/L			12/15/14 14:07	1
1,1-Dichloroethane	ND	1.0	0.12	ug/L			12/15/14 14:07	1
1,1-Dichloroethene	ND	1.0	0.30	ug/L			12/15/14 14:07	1
1,2,4-Trichlorobenzene	ND	1.0	0.27	ug/L			12/15/14 14:07	1
1,2-Dibromo-3-Chloropropane	ND	1.0	0.14	ug/L			12/15/14 14:07	1
1,2-Dichlorobenzene	ND	1.0	0.15	ug/L			12/15/14 14:07	1
1,2-Dichloroethane	ND	1.0	0.21	ug/L			12/15/14 14:07	1
1,2-Dichloropropane	ND	1.0	0.095	ug/L			12/15/14 14:07	1
1,3-Dichlorobenzene	ND	1.0	0.11	ug/L			12/15/14 14:07	1

Client: ARCADIS U.S. Inc TestAmerica Job ID: 180-39575-1

Project/Site: INDSPEC, Petrolia PA

Client Sample ID: TRIP BLANK

Dibromofluoromethane (Surr)

Toluene-d8 (Surr)

Lab Sample ID: 180-39575-22 Date Collected: 12/04/14 00:00

Matrix: Water

Method: 8260C - Volatile Orga	-								
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
1,4-Dichlorobenzene	ND		1.0	0.21	ug/L			12/15/14 14:07	
2-Butanone (MEK)	ND		5.0	0.55	-			12/15/14 14:07	1
2-Hexanone	ND		5.0	0.16				12/15/14 14:07	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.53	_			12/15/14 14:07	1
Acetone	ND		5.0		ug/L			12/15/14 14:07	1
Benzene	ND		1.0	0.11				12/15/14 14:07	1
Bromoform	ND		1.0	0.19	_			12/15/14 14:07	1
Bromomethane	ND	J	1.0	0.31				12/15/14 14:07	1
Carbon disulfide	ND		1.0	0.21	ug/L			12/15/14 14:07	1
Carbon tetrachloride	ND		1.0	0.14	_			12/15/14 14:07	1
Chlorobenzene	ND		1.0	0.14	ug/L			12/15/14 14:07	1
Chlorodibromomethane	ND		1.0	0.14	ug/L			12/15/14 14:07	1
Chloroethane	ND		1.0	0.21	_			12/15/14 14:07	1
Chloroform	ND		1.0	0.17	ug/L			12/15/14 14:07	1
Chloromethane	0.39	J	1.0	0.28	ug/L			12/15/14 14:07	1
cis-1,2-Dichloroethene	ND		1.0	0.24	_			12/15/14 14:07	1
cis-1,3-Dichloropropene	ND	J	1.0	0.19	ug/L			12/15/14 14:07	1
Cyclohexane	ND		1.0	0.25	ug/L			12/15/14 14:07	1
Dichlorobromomethane	ND		1.0	0.13	ug/L			12/15/14 14:07	1
Dichlorodifluoromethane	ND		1.0	0.19	ug/L			12/15/14 14:07	1
Ethyl ether	ND		1.0	0.082	ug/L			12/15/14 14:07	1
Ethylbenzene	ND		1.0	0.23	ug/L			12/15/14 14:07	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			12/15/14 14:07	1
Isopropylbenzene	ND		1.0	0.16	ug/L			12/15/14 14:07	1
Methyl acetate	ND		1.0	0.14	ug/L			12/15/14 14:07	1
Methyl tert-butyl ether	ND		1.0	0.18	ug/L			12/15/14 14:07	1
Methylcyclohexane	ND		1.0	0.26	ug/L			12/15/14 14:07	1
Methylene Chloride	0.63	J	1.0	0.13	ug/L			12/15/14 14:07	1
Styrene	ND		1.0	0.097	ug/L			12/15/14 14:07	1
Tetrachloroethene	ND		1.0	0.15	ug/L			12/15/14 14:07	1
Toluene	ND		1.0	0.15	ug/L			12/15/14 14:07	1
trans-1,2-Dichloroethene	ND		1.0	0.17	ug/L			12/15/14 14:07	1
trans-1,3-Dichloropropene	ND		1.0	0.15	ug/L			12/15/14 14:07	1
Trichloroethene	ND		1.0	0.14	ug/L			12/15/14 14:07	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/15/14 14:07	1
Vinyl chloride	ND		1.0	0.23	ug/L			12/15/14 14:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		64 - 135					12/15/14 14:07	1
4-Bromofluorobenzene (Surr)	100		70 - 118					12/15/14 14:07	1

12/15/14 14:07

12/15/14 14:07

70 - 128

71 - 118

108

101



INDSPEC Petrolia

Data Usability Assessment

South Branch Bear Creek Sediments

September and December 2014 and January 2015 Sampling Events

Report Prepared by:

ARCADIS

Conestoga Rovers & Associates

June 2015

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Addendum: Additional Laboratory Investigations

ACRONYMS

%R percent recovery

BSA benzene sulfonic acid

DQI data quality indicator

m-BDSA meta-benzenedisulfonic acid

MS matrix spikes

MSD matrix spike duplicate

PADEP Pennsylvania Department of Environmental Protection

p-PSA para-phenolsulfonic acid

QC quality control

RL reporting limit

RPD relative percent difference

THD 2,4,3'-trihydroxydiphenyl

VOC volatile organic compound

USEPA United States Environmental Protection Agency

EXECUTIVE SUMMARY

This report discusses the usability of chemistry data for sediments collected in September and December 2014 and January 2015 from South Branch Bear Creek in Petrolia, PA.

Beazer and INDSPEC entered into a Facility Lead Agreement with the Pennsylvania Department of Environmental Protection (PADEP) in 2004 for the Beazer/INDSPEC properties in Petrolia, PA. Beazer and INDSPEC have conducted site characterization and remediation activities in accordance with Pennsylvania's Land Recycling and Environmental Standards Act (Act 2) and the *Surface-Water/Sediment Sampling Work Plan* submitted to PADEP on May 1, 2014 and approved by PADEP in a May 27, 2014 e-mail from Ms. Nancy Duerring of PADEP to Mr. Mark Hanish of ARCADIS.

As part of the ongoing site work, sediments from the segment of the South Branch of Bear Creek that flows through the Site were collected and analyzed for the following constituents:

- Volatile organic compounds (VOCs) (United States Environmental Protection Agency [USEPA] 8260 List)
- Specialty compounds, including:
 - o 2,4,3'-Trihydroxydiphenyl (THD)
 - o Benzenesulfonic acid
 - meta-Benzenedisulfonic acid
 - o para-Phenolsulfonic acid
 - o Resorcinol
 - o Formaldehyde
 - Phenol
 - Sulfate

Samples were analyzed by TestAmerica Laboratory in accordance with methods accredited by PADEP.

The sampling and analysis program was designed to characterize sediment conditions to support the Remedial Investigation. Data were validated to determine their quality with respect to method and program requirements. Although laboratory quality control measurements generally met method and laboratory criteria, significant problems were noted with the sediment samples themselves. Data have been rejected for resorcinol in all but one sample and for THD in all sediments. Despite additional laboratory efforts to achieve acceptable recoveries of these analytes, select constituents in sediment sample results were qualified as rejected (R) during validation and are, therefore, considered unusable. All other data were considered usable.

Data completeness for these sediment samples, including the full list of volatile organics, is 90%.

As an addendum to this usability assessment, information provided from additional work at TestAmerica Laboratory is presented.

1.0 Introduction

This data usability assessment covers data for the sediment samples collected in September and December 2014 and January 2015 from the South Branch Bear Creek as part of the ongoing Remedial Investigation of the site. Data usability has been evaluated for all constituents analyzed in sediment during these sampling events.

2.0 Program Objectives

As part of the ongoing Remedial Investigation activities, sediment samples from the segment of the South Branch of Bear Creek that flows through the Site were collected and analyzed. These analyses characterized overall sediment quality to support the Remedial Investigation.

The constituents analyzed during these sampling events included:

- VOCs (USEPA 8260 List)
- Specialty Compounds Including:
 - o 2,4,3'-Trihydroxydiphenyl (THD)
 - Benzenesulfonic acid (BSA)
 - meta-Benzenedisulfonic acid (m-BDSA)
 - para-Phenolsulfonic acid (p-PSA)
 - Resorcinol
 - o Formaldehyde
- Phenol
- Sulfate

Samples were analyzed by TestAmerica Laboratory in accordance with methods accredited by the Pennsylvania Department of Environmental Protection (PADEP) in accordance with Pennsylvania's Land Recycling and Environmental Standards Act (Act 2). The sampling was also performed in accordance with the *Surface-Water/Sediment Sampling Work Plan* submitted to PADEP on May 1, 2014 and approved by PADEP in a May 27, 2014 e-mail from Ms. Nancy Duerring of PADEP to Mr. Mark Hanish of ARCADIS.

Sampling and analyses, data validation, and data interpretation have generated sufficient data to document the absence or presence and concentrations of some but not all the constituents analyzed. This data usability assessment has been conducted to determine whether data are usable with respect to program objectives.

2.1 Samples

Sediment samples were collected for analysis of all the above-listed analytes, except for phenol, from three locations in the South Branch Bear Creek in September 2014, and then from the same locations in December 2014. Both sampling events also included collection of one field

duplicate for analyses for all parameters for four sediment samples each event. Samples were accompanied by trip and field blanks.

Subsequent to completion of the September 2014 sampling event, PADEP requested that Beazer/INDSPEC collect samples that included analysis of phenol. The December 2014 sampling event did include samples collected for phenol analysis, but due to laboratory error, the samples for phenol collected during that event were inadvertently not analyzed. Therefore, additional sediment samples were collected during a third sediment sampling (January 29, 2015), specifically and only for the analysis of phenol.

3.0 Analysis Methods

Analyses were conducted in accordance with standard USEPA methods and PADEP accredited methods, including:

- Volatile organics by SW-846 Method 8260B
- Phenol by SW-846 8270C
- Formaldehyde by SW-846 Method 8315
- Sulfate by USEPA Method 300.0
- Sulfonic acids, resorcinol, and THD by OR357A TestAmerica, LC/MS/MS

Samples were appropriately preserved. Samples collected for sulfonic acids, resorcinol, and THD analysis were frozen in the field immediately after collection and stored at the laboratory at -20 degrees Celsius until analysis, as required by the method.

4.0 Data Usability Assessment Elements

The data usability assessment considers whether the data met project quality objectives as they relate to decision making. Any deficiencies in the dataset, such as a failure to meet reporting limit (RL) objectives, evidence of bias significant to water quality limits, or rejection of individual data points, have been evaluated for their impact on usability. All analytical data, data validation qualifiers, and quality control (QC) results were evaluated to establish the confidence with which data could be used for decision making at the Site.

Data quality indicators (DQIs) are qualitative and quantitative measures of performance requirements for work performed. DQIs are expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity.

4.1 Precision

Precision is defined as the degree of agreement between or among independent, similar, or repeated measurements. Precision is expressed in terms of analytical variability. For this project, analytical variability was measured as the relative percent difference (RPD) between analytical laboratory duplicates and between matrix spikes (MS) and matrix spike duplicates (MSD). Sample collection variability, combined with analytical variability, was measured by the analyses of blind field duplicates.

With limited exceptions as detailed in Section 6, precision measurements were acceptable, falling within method or laboratory limits. None of the exceptions affects data usability for samples or target analytes.

4.2 Accuracy

Accuracy is defined as the degree of agreement between a measurement or observation and the known of "true" value. This is quantitatively expressed as the percent recovery (%R). For the purposes of this project, accuracy measurements included continuing calibration stability, and %Rs from laboratory spikes, MS, and surrogate compounds. Additional bias to accuracy from detections in blank samples was also evaluated.

With limited, minor exceptions, laboratory-based accuracy measurements, including blanks, calibrations, and laboratory spikes were acceptable. Sample-based accuracy measurements, including spike and surrogate recoveries, were acceptable for volatiles, sulfate, and formaldehyde; matrix effects did not affect accuracy for most sulfonic acid analytes; although, matrix effects did significantly limited accuracy for resorcinol and THD, as well as some of the sulfonic acid analytes.

4.3 Representativeness

Representativeness is a qualitative measure of the degree to which sample data accurately and precisely represent the environmental condition. The measure of representativeness is established by the rationale and development of the sampling and analysis approach and then reassessed during the data usability process.

Sampling and analytical methods followed established protocols to ensure that the sediments were representative for this portion of Bear Creek.

4.4 Comparability

Comparability is a qualitative term that expresses the confidence with which one dataset can be compared to another dataset obtained during parallel or previous investigations, to reference values (such as background), reference materials, and screening values. Comparability for this project was achieved by using standard techniques to collect representative samples and following analytical methods used for other environmental programs conducted under the direction or oversight of the USEPA and/or PADEP.

4.5 Sensitivity

Method sensitivity is defined as the degree to which any compound can be detected within specific confidence criteria. All laboratory RLs for this program were consistent with the RLs presented in the laboratory Quality Assurance Plans for TestAmerica. In addition, results for all analytes detected below the RLs but above the laboratory's method detection limit were reported. It should be noted that all these trace level detections are qualified as estimated (J) because accuracy below the RL is not established.

4.6 Completeness

Completeness is defined as the percentage of usable data in the total data population generated. Usable data generally includes data that may be qualified for minor QC issues, but where potential bias does not impact the usability of the result with respect to the characterization of presence or absence of the analyte or affect decisions made versus criteria or action limits.

Data completeness for sediment samples varied significantly over the analyte classes.

5.0 Data Validation

Independent data validation for all results was completed by ARCADIS, Syracuse, New York. Data for organics analyses were reviewed in accordance with USEPA National Functional Guidelines of October 1999 as modified or applicable to the methods, using method requirements and professional judgment as criteria for qualification.

Data for sulfate were reviewed in accordance with USEPA National Functional Guidelines of July 2002 as modified or applicable to the method, using method requirements and professional judgment as criteria for qualification.

Qualifiers as defined in the cited guidance documents were appended to results to identify any deviations from criteria as specified in the methods or TestAmerica Laboratory Quality Assurance Plans. Validation for all analyses for all samples included review of holding times; instrument initial and continuing calibrations; recoveries of blank spikes, MS, and surrogate spikes if applicable; field duplicate and laboratory duplicate precision; retention times and target compound identifications for organic analyses; internal standard recoveries for organic analyses; and overall system performance. All analytical raw data associated with constituents of concern were reviewed for this validation.

ARCADIS provided detailed validation reports, which have been relied upon for this usability assessment. These reports detail all major and minor QC deficiencies, but do not include an overall usability or completeness assessment.

6.0 Data Usability Assessment

ARCADIS and Conestoga Rovers & Associates have reviewed the validation reports and data qualifiers applied to determine individual usability of all measurements and overall usability for the dataset.

Rejected data are by definition unusable; rejection of a result, whether reported as a detection or non-detection, indicates that the analysis failed to provide reliable evidence for the presence or absence of an analyte.

Qualified data are generally usable if the reason for the qualification and the potential bias to the result do not preclude an overall understanding of the presence or absence of the chemical or, secondarily for sediments for this project, preclude a general approximation of the concentration.

Usability determinations relative to standards or action limits take into account the magnitude of the potential bias and the closeness of the reported level to the standard or limit. For example, a result qualified as potentially biased low but still above a standard or limit can be used with confidence to demonstrate non-compliance with the standard. If a result with low bias is reported below the standard but within the range of the potential bias, it may not be usable to demonstrate compliance or non-compliance. Additionally, a result falling several times below any action limit or standard may be usable if the potential bias is minor in comparison to the difference between the result and the limit or standard. For analytes for which no standards are set, usability does not require as high a degree of accuracy around a specific concentration value.

6.1 Usable Data

Over 90% of all data collected during the sediment sampling program was useable. Only select specialty compounds data was not considered usable as outlined in Section 6.2.

6.2 Rejected Data

USEPA guidelines require rejection of data when calibration responses are unacceptably low or when an analyte is non-detect but recoveries of spikes fall below 10%.

The method for the analysis of the sulfonic acids, resorcinol, and THD requires that MS be prepared for all analytes in each sample. Recoveries of several of the sulfonic acids, resorcinol, and THD from the sediments did not meet the minimum requirement for usability. Data were rejected as listed below in the table below:

Sample	Event	Rejected Analytes		
SED-101	September	THD, p-PSA, Resorcinol		
	December	THD, Resorcinol (Resorcinol usable in field duplicate)		
SED - 102	September	THD, Resorcinol		
	December	THD, Resorcinol		
SED-103	September	THD, Resorcinol		
	December	THD, Resorcinol, Benzenesulfonic acid, m-BDSA, p-PSA, BSA		

The laboratory blank spikes were acceptable, and TestAmerica Laboratory has a successful record for analyses of all these constituents in soils and sediments from other sample sets. The recovery failures for these sediments were problematic. The laboratory initially believed that interferences from interferents could be responsible, but attempts to clean the extracts with a hexane wash did not improve results. After the December 2014 recovery failures, the laboratory added spikes to sample extracts shortly before analysis (comparable to the post-digestion spikes performed during metals analysis). Recoveries of these were acceptable, demonstrating that the failures were not a result of interferences during instrumental analysis. It appears that

the analytes are being degraded or otherwise lost during the sample extraction step due to microbial action or other matrix issues not typical of the soils/sediments from the area.

6.3 Estimated Results for Detected and Non-Detect Analytes

Quantitative results for detected analytes may be qualified during validation as estimated for a number of reasons. The "J" qualifier appended to a result indicates that the analyte is confirmed present but the absolute amount should be considered an estimate.

Reporting limits for non-detect analytes may also be qualified as estimated. The "UJ" qualifier appended to a result indicates that within a known range of uncertainty, there is no evidence that the analyte is present, but that the exact detection or RL is not established by the data.

Data qualified as estimated in this set are considered usable for project purposes.

Data for this program were qualified as estimated for reasons, including the following:

- The measurement fell between the method RL and the laboratory's method detection limit.
- Instrument drift as evidenced by percent relative standard deviation exceedances for initial
 calibrations or RPDs above the control limit for continuing calibrations. Results are not
 qualified for non-detections if the drift indicates increasing sensitivity.
- Recoveries of internal standards, surrogates, laboratory control spikes MS and/or MSDs fell outside the control limits but above a minimum limit as established in the method.

6.3.1 Volatile Organics

The most common reason for the J qualifier in sediments is the detection of trace levels of an analyte below the method RL. Trace levels of various volatile organic analytes detected in the sediments were qualified as estimated for this reason.

One internal standard in the September 2014 sample for volatile organics analysis of SED-102 fell below the control limit but above the limit for data rejection. No analytes associated with this internal standard were detected, but detection limits have been qualified as estimated (UJ) for the affected compounds.

Recoveries of several volatile organics in the MS/MSDs from SED-102 were above the control limit for both the September and December 2014 analyses; those detected have been qualified as estimated with potential high bias. 1,2,4-Trichlorobenzene recovery was below the limit in the MS in both sets, and bromoform and 1,1,2,2-tetrachloroethane were low in the December 2014 MS; none of these compounds were detected, but their detection limits have been qualified (UJ).

The continuing calibration for volatile organics associated with the December 2014 sediments demonstrated decreased sensitivity towards methyl acetate, while the trans-1,2-dichloroproane recoveries were low in the laboratory control sample. Neither was detected, and their detection limits have been qualified as estimated (UJ).

6.3.2 Sulfonic Acids, Resorcinol, THD

Recoveries from MS for the September 2014 samples of BSA in SED-101 and its field duplicate, p-PSA in SED-102, and m-BDSA and BSA in SED-103 fell below the control limit of 60% but were above the lower limit for acceptance. Results and RLs for these have been qualified as estimated (J, UJ).

The continuing calibration associated with the sediments in December 2014 demonstrated increasing sensitivity towards BSA, p-PSA, resorcinol, and THD. Those results not affected by MS recovery failures are qualified as estimated.

6.3.3 Phenol, Formaldehyde, and Sulfate

Formaldehyde recovered at less than 10% from the MS from SED-102 in December 2014. Formaldehyde was detected in the sample; therefore, the result has been qualified as estimated with potential low bias. Results for formaldehyde in SED-101 and its field duplicate in December 2014 differed (65% RPD) above the control limit of 50% RPD. Results for both are qualified as estimated.

Field duplicates for SED-101 for sulfate analysis in September 2014 also differed (68%) above the limit and results have been qualified.

6.4 Qualifications for Blank Detections

As analytical instrumentation has become more sensitive, detections of trace levels of analytes in field and laboratory blanks has become more common. This is especially true for a limited number of organic analytes that are frequently seen as laboratory background or susceptible to instrument carryover and when results are reported to the laboratory's detection limits rather than the method limits. When a target analyte is detected in a laboratory method blank, field, or trip blank, results in associated samples that fall within a factor of five times the blank level (10 times the blank for some common organics) are considered potential false positives. In accordance with USEPA guidelines, these results are qualified as non-detect due to blank contamination (UB). Results reported below the method RL are qualified to be non-detect (UB) at the RL. Results reported above the method RL but below 5 (or 10) times the blank are qualified to be non-detect (UB) at the level noted.

Acetone was detected in the trip blank for the September 2014 sediment samples. The trace level of acetone detected in SED-102 was qualified as non-detect at the RL (UB). Methylene chloride was detected in the method blanks associated with the December 2014 sediments. Sediment results were above the RL, but less than 10 times the blank concentration; results have been qualified as non-detect (UB) at the level measured in the sample.

7.0 Conclusions

Data usability for program objectives for the sediment samples collected in the South Branch of Bear Creek is dependent on the analyte class with 100% usability for VOCs, formaldehyde, and sulfate and less than 100% usability for the specialty compounds BSA, m-BDSA, p-PSA, resorcinol, and THD. Usability for the constituents is limited by losses during sample

preparation. The combined completeness of all constituents over the sampling events is summarized below:

- VOCs, formaldehyde, sulfate, and phenol: All data usable, 100% completeness.
- Benzenesulfonic acid, m-benzenedisulfonic acid:
 - All samples locations have at least one usable measurement data point (from either September or December 2014) that can be relied upon to characterize the presence and approximate concentration or the absence of BSA and m-BDSA.
 - Data for all samples collected in September 2014 and SED-101 and SED-102 in December 2014 are usable to confirm the presence or absence and approximate concentration of BSA and M-BDSA. December 2014 sample results for both analytes in SED-103 are rejected.

p-Phenolsulfonic acid:

- All locations have at least one data point (from either September or December 2014) that can be relied upon to characterize the presence and approximate concentration or the absence of p-PSA.
- Results for the September analysis of SED-101 and the December analysis of SED-103 were rejected.

Resorcinol:

- The December 2014 analysis of the field duplicate for SED-101 is usable to confirm the absence of resorcinol at the estimated limit.
- All other resorcinol data were rejected due to losses of spiked resorcinol during preparation.

THD

All measurements rejected due to losses of spiked TDH during preparation. The
presence or absence of this analyte in sediments cannot be confirmed. No data are
usable.

Matrix issues appear to preclude analysis of sediments from this segment of the South Branch of Bear Creek for THD and resorcinol. These issues also affect the sulfonic acids, making spike recoveries variable and sometimes unacceptable. Laboratory performance of the method, as demonstrated by calibrations, blank spike recoveries, and post-preparation spike recoveries, was acceptable.

ADDENDUM

Additional Laboratory Investigations

The recovery failures for MS of resorcinol and THD from the South Branch of Bear Creek sediments collected in September 2014 prompted efforts to identify the causes and potential corrective steps that would allow the generation of valid data for these analytes. While the method was originally developed by Exygen Laboratories in the early 2000s and validated for waters, extraction of soils and sediments by shaking has historically provided usable data for these media as well.

Potential causes considered for the recovery failures include the following:

- interferences from other chemicals in the sediments
- strong adsorption onto the sediment particles
- losses due to microbial action.

Data for THD are very limited, but resorcinol is expected to have low adsorption and high mobility in sediments, with biodegradation expected to be an important fate process. The half-life for resorcinol has been reported as 3.7 to 5.8 hours in acclimated sludges. THD shares structural similarities with resorcinol, but data for its tendency to adsorb onto sediment or to biodegrade have not been reported.

Sediment samples from September 2014 were spiked and re-extracted to assess whether chemical interferences, if present, could be removed. One portion from each extract was washed with hexane, which would be expected to remove a wide range of organics, including petroleum hydrocarbons, greases, biogenic materials, and synthetic organic chemicals. Recoveries of spikes were not improved by the hexane wash. If chemical interferences were responsible, the hexane wash would likely have removed them.

For the December 2014 samples, TestAmerica Laboratory diluted the sample extracts to reduce the impact of any interferences on the instrumental analysis. Test America increased the spiking level so that spiked resorcinol and THD would be detectable after dilution and then analyzed the samples at two levels of dilution. While this approach raised RLs for resorcinol and THD, RLs for the sulfonic acids were not affected. Recoveries were again unacceptable for resorcinol and THD in all sediments and for all analytes in one sediment sample.

As a final step to evaluate the potential effect of interferences on the analysis, sample extracts were spiked and analyzed directly. The spikes in this experiment did not contact sediment or experience the prolonged shaking period of the method for sediment preparation. All resorcinol and THD post-spikes were recovered within the method control limits. This result indicates that interferences in the extracts or analytical difficulties are not responsible for the recovery failures.

Within the structure and requirements of the PADEP-approved method, no other modifications to the analysis were considered applicable.

¹. Hazardous Substance Data Base. NIH US National Library of Medicine http://toxnet.nlm.nih.gov/. Accessed 02/2015

INDSPEC Petrolia

Data Usability Assessment

South Branch Bear Creek Surface Waters

September 2014 and December 2014 Sampling Events

Report Prepared by:

ARCADIS

Conestoga Rovers & Associates

June 2015

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Table 1

ACRONYMS

%RSD percent relative standard deviation

BSA benzene sulfonic acid

DQI data quality indicator

MS matrix spike

MSD matrix spike duplicate

PADEP Pennsylvania Department of Environmental Protection

p-PSA para-phenolsulfonic acid

QC quality control

RL reporting limit

RPD relative percent difference

THD 2,4,3'-trihydroxydiphenyl

USEPA United States Environmental Protection Agency

VOC volatile organic compound

EXECUTIVE SUMMARY

This report supports the usability of chemistry data for surface waters collected in September and December 2014 from the South Branch of Bear Creek in Petrolia, PA.

Beazer and INDSPEC entered into a Facility Lead Agreement with the Pennsylvania Department of Environmental Protection (PADEP) in 2004 for the Beazer/INDSPEC properties in Petrolia, PA. Beazer and INDSPEC have conducted site characterization and remediation activities in accordance with Pennsylvania's Land Recycling and Environmental Standards Act (Act 2) and the *Surface-Water/Sediment Sampling Work Plan* submitted to PADEP on May 1, 2014 and approved by PADEP in a May 27, 2014 e-mail from Ms. Nancy Duerring of PADEP to Mr. Mark Hanish of ARCADIS.

As part of the ongoing site work, two sets of surface-water samples from the segment of the South Branch of Bear Creek that flows through the Site were collected and analyzed for the following constituents:

- Volatile organic compounds (United States Environmental Protection Agency 8260 List)
- Specialty compounds, including:
 - o 2,4,3'-Trihydroxydiphenyl
 - o Benzenesulfonic acid
 - meta-Benzenedisulfonic acid
 - o para-Phenolsulfonic acid
 - o Resorcinol
 - o Formaldehyde
- Phenol
- Sulfate

Samples were analyzed by TestAmerica Laboratory in accordance with methods accredited by PADEP.

The sampling and analysis program was designed to provide defensible data to support the Remedial Investigation. Data were validated to determine their quality with respect to method and program requirements. With minor exceptions that resulted in some data and reporting limits qualified as estimated, quality control measurements met method and laboratory criteria. No data were rejected and no qualifications applied preclude comparison to limits or standards.

Data completeness for these surface-water samples is 100%. Results demonstrate compliance with applicable standards.

1.0 Introduction

This data usability assessment covers data for the surface-water samples collected in September and December 2014 from the South Branch of Bear Creek as part of the ongoing Remedial Investigation of the Site. Data usability has been evaluated and evaluated for all constituents analyzed in surface-water samples during these sampling events.

2.0 Program Objectives

As part of the ongoing Remedial Investigation activities, surface-water samples from the segment of the South Branch of Bear Creek that flows through the Site were collected and analyzed to support the Remedial Investigation. Analyses were conducted to characterize overall water quality and to compare concentrations with available water quality standards, as presented in Table 1.

The constituents analyzed during these sampling events included:

- Volatile organic compounds (United States Environmental Protection Agency [USEPA] 8260 List)
- Specialty compounds, including:
 - o 2,4,3'-Trihydroxydiphenyl (THD)
 - Benzenesulfonic acid (BSA)
 - o meta-Benzenedisulfonic acid
 - o para-Phenolsulfonic acid (p-PSA)
 - o Resorcinol
 - o Formaldehyde
- Phenol
- Sulfate

Samples were analyzed by TestAmerica Laboratory in accordance with methods accredited by the Pennsylvania Department of Environmental Protection (PADEP). All sampling and analyses were conducted in accordance with Pennsylvania's Land Recycling and Environmental Standards Act (Act 2). The sampling was also performed in accordance with the *Surface-Water/Sediment Sampling Work Plan* submitted to PADEP on May 1, 2014 and approved by PADEP in a May 27, 2014 e-mail from Ms. Nancy Duerring of PADEP to Mr. Mark Hanish of ARCADIS.

Sampling and analyses, data validation, and data interpretation have generated sufficient data to document the absence or presence and concentrations of the constituents. This data usability assessment has been conducted to determine whether data are usable with respect to program objectives and can be compared to applicable standards with confidence.

2.1 Samples

Surface-water samples were collected from 15 locations in the South Branch of Bear Creek in September 2014, and then from the same locations in December 2014. Both sampling events also included collection of one field duplicate for analyses for all parameters for 16 surface-water samples each event. Samples were accompanied by trip and field blanks.

Subsequent to completion of the September 2014 sampling event, PADEP requested that Beazer/INDSPEC collect samples that included analysis of phenol. The December 2014 sampling event did include samples collected for phenol analysis.

3.0 Analysis Methods

Analyses were conducted in accordance with standard USEPA methods and PADEP-accredited methods, including:

- VOCs by SW-846 Method 8260B
- Phenol by SW-846 8270C
- Formaldehyde by SW-846 Method 8315
- Sulfate by USEPA Method 300.0
- Sulfonic acids, resorcinol, and THD by OR357A TestAmerica Laboratory, LC/MS/MS

Samples were appropriately preserved. Samples collected for sulfonic acid, resorcinol, and THD analysis were frozen in the field immediately after collection and stored at the laboratory at -20 degrees Celsius until analysis, as required by the method.

4.0 Data Usability Assessment Elements

The data usability assessment considers whether the data meet project quality objectives as they relate to decision making. Any deficiencies in the dataset, such as a failure to meet reporting limit (RL) objectives, evidence of bias significant to water quality limits, or rejection of individual data points, have been evaluated for their impact on usability. All analytical data, data validation qualifiers, and quality control (QC) results were evaluated to establish the confidence with which data could be used for decision making at the Site.

Data quality indicators (DQIs) are qualitative and quantitative measures of performance requirements for work performed. DQIs are expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity.

4.1 Precision

Precision is defined as the degree of agreement between or among independent, similar, or repeated measurements. Precision is expressed in terms of analytical variability. For this project, analytical variability was measured as the relative percent difference (RPD) between analytical laboratory duplicates and between matrix spikes (MS) and matrix spike duplicates (MSDs). Sample collection variability, combined with analytical variability, was measured by the analyses of blind field duplicates.

With limited exceptions as detailed in Section 6.0, precision measurements were acceptable, falling within method or laboratory limits. None of the exceptions affects data usability for samples or target analytes.

4.2 Accuracy

Accuracy is defined as the degree of agreement between a measurement or observation and the known of "true" value. This is quantitatively expressed as the percent recovery (%R). For the purposes of this project, accuracy measurements included continuing calibration stability, percent recoveries from laboratory spikes, MS, and surrogate compounds. Additional bias to accuracy from detections in blank samples was also evaluated.

With limited, minor exceptions as detailed in Section 6.0, accuracy objectives were satisfied for all analyses. None of the minor deficiencies noted affect data usability for samples or target analytes.

4.3 Representativeness

Representativeness is a qualitative measure of the degree to which sample data accurately and precisely represent the environmental condition. The measure of representativeness is established by the rationale and development of the sampling and analysis approach, and then reassessed during the data usability process.

Sampling locations were selected to represent stream surface-water conditions within the Act 2 site boundary, with additional samples taken upstream and downstream. Sampling and analytical methods followed established protocols to ensure that the surface waters were representative of the stream.

4.4 Comparability

Comparability is a qualitative term that expresses the confidence with which one dataset can be compared to another dataset obtained during parallel or previous investigations, to reference values (such as background), reference materials, and screening values. Comparability for this project was achieved by using standard techniques to collect representative samples and following analytical methods used for other environmental programs conducted under the direction or oversight of the USEPA and/or PADEP.

4.5 Sensitivity

Method sensitivity is defined as the degree to which any compound can be detected within specific confidence criteria. All laboratory RLs for this program were consistent with the RLs presented in the laboratory Quality Assurance Plans for TestAmerica Laboratory. In addition, results for all analytes detected below the RLs but above the laboratory's method detection limit were reported. It should be noted that all these trace level detections are qualified as estimated (J) because accuracy below the RL is not established.

4.6 Completeness

Completeness is defined as the percentage of usable data in the total data population generated. Usable data generally includes data that may be qualified for minor QC issues but where potential bias does not impact the usability of the result with respect to the characterization of presence or absence of the analyte or affect decisions made versus criteria or action limits.

5.0 Data Validation

Independent data validation for all results was completed by ARCADIS, Syracuse, New York. Data for organics analyses were reviewed in accordance with USEPA National Functional Guidelines of October 1999 as modified or applicable to the methods, using method requirements and professional judgment as criteria for qualification.

Data for sulfate were reviewed in accordance with USEPA National Functional Guidelines of July 2002 as modified or applicable to the method, using method requirements and professional judgment as criteria for qualification.

Qualifiers as defined in the cited guidance documents were appended to results to identify any deviations from criteria as specified in the methods or TestAmerica Laboratory Quality Assurance Plans. Validation for all analyses for all samples included review of holding times. Instrument initial and continuing calibrations; recoveries of blank spikes, MS, and surrogate spikes if applicable; field duplicate and laboratory duplicate precision; retention times and target compound identifications for organic analyses; internal standard recoveries for organic analyses; and overall system performance. Only analytical raw data associated with constituents of concern were reviewed for this validation.

ARCADIS provided detailed validation reports that have been relied upon for this usability assessment. These reports detail all major and minor QC deficiencies, but do not include an overall usability or completeness assessment.

6.0 Data Usability Assessment

ARCADIS and Conestoga Rovers & Associates have reviewed the validation reports and data qualifiers applied to determine individual usability of all measurements and overall usability for the dataset.

Rejected data are by definition unusable; rejection of a result whether reported as a detection or non-detect, indicates that the analysis failed to provide reliable evidence for the presence or absence of an analyte. No data from these two sets of surface-water samples were rejected.

Qualified data are generally usable if the reason for the qualification and the potential bias to the result do not preclude an overall understanding of the presence or absence of the chemical or, secondarily for this project, preclude a meaningful comparison to an action level or regulatory standard. The data usability determination for this program includes a comparison of results and potential bias of the analytes relative to standards as listed in Table 1.

Usability determinations relative to these standards or action limits take into account the magnitude of the potential bias and the closeness of the reported level to the standard or limit. For example, a result qualified as potentially biased low but still above a standard or limit can be used with confidence to demonstrate non-compliance with the standard. If a result with low bias is reported below the standard but within the range of the potential bias, it may not be usable to demonstrate compliance or non-compliance. Additionally, a result falling several times below any action limit or standard may be usable if the potential bias is minor in comparison to the difference between the result and the limit or standard.

6.1 Rejected Results

USEPA guidelines require rejection of data when calibration responses are unacceptably low or when an analyte is non-detect but recoveries of spikes fall below 10%.

No results for the surface-water samples were rejected.

6.2 Estimated Results for Detected and Non-Detect Analytes

Quantitative results for detected analytes may be qualified during validation as estimated for a number of reasons. The "J" qualifier appended to a result indicates that the analyte is confirmed present but the absolute amount should be considered an estimate.

RLs for non-detect analytes may also be qualified as estimated. The "UJ" qualifier appended to a result indicates that within a known range of uncertainty, there is no evidence that the analyte is present but that the exact detection or RL is not established by the data.

Data for this program were qualified as estimated for reasons including the following:

- The measurement fell between the method RL and the laboratory's method detection limit.
- Instrument drift as evidenced by percent relative standard deviation (%RSD) exceedances for initial calibrations or RPDs above the control limit for continuing calibrations
- Recoveries of MS and/or MSDs fell outside the control limits but above a minimum limit as established in the method.
- Holding time exceedances for the sample.

The most common reason for the J qualifier in surface waters is the detection of trace levels of an analyte below the method RL. A total of 67 data points fall into this category, primarily trace levels of various volatile organic analytes.

Variability in the response to methylene chloride during the initial calibration (18%RSD in September 2014, 20%RSD in December vs. method limit of 15%) resulted in qualifications to the RLs (UJ) for all September and the six December 2014 samples. The %RSD for cis-1,3-dichloropropane in the calibration associated with the December 2014 samples was 16%; this analyte was not detected but the RL for these samples is qualified as estimated (UJ). A slight decrease in sensitivity towards bromomethane (%D of 25.9 and 20.5% vs control limit of 20%) was noted in the continuing calibrations for bromomethane during the analyses of December 2014 samples, and the RLs for this analyte in six samples have been qualified. Methylene

chloride, bromomethane, and cis-1,3-dichloropropane were not detected in any water samples and the minor bias associated with these calibration deficiencies does not limit data usability.

Recoveries of several of the sulfonic acids, resorcinol, and THD analytes in the MS of the September 2014 samples were above control limits in samples where these analytes were not detected. Data are not qualified for these exceedances. Recoveries of resorcinol in SW-5 Langan (58%), BSA in SW-2 Langan (58%), SG-2(56%), SG-6 (58%), and SH-1 (59%) fell below the laboratory limit of 60%. The affected analytes were not detected in these samples; RLs have been qualified as estimated (UJ) but data usability is not limited by these minor deficiencies in spike recovery. All MS recoveries for resorcinol and BSA in the December 2014 waters fell within the control limits.

Recovery of p-PSA from the MS of the field duplicate of SG-3 was above the control limit, and the sample result has been qualified as estimated. It should be noted, however, that the result matched the SG-3 parent sample with 0% difference.

Formaldehyde analyses were conducted 1 day past the method holding time for four of the September 2014 samples, but within holding time for the December 2014 samples. Detections for all samples were significantly below the RL and qualified as estimated for that reason, but detections for these four samples are additionally qualified as estimated due to the exceedance.

6.3 Qualifications for Blank Detections

As analytical instrumentation has become more sensitive, detections of trace levels of analytes in field and laboratory blanks has become more common. This is especially true for a limited number of organic analytes that are frequently seen as laboratory background or susceptible to instrument carryover and when results are reported to the laboratory's detection limits rather than the method limits. When a target analyte is detected in a laboratory method blank, field, or trip blank, results in associated samples that fall within a factor of five times the blank level (10 times the blank for some common organics) are considered potential false positives. In accordance with USEPA guidelines, these results are qualified as non-detect due to blank contamination (UB). Results reported below the method RL are qualified to be non-detect (UB) at the RL. Results reported above the method RL but below 5 (or 10) times the blank are qualified to be non-detect (UB) at the level noted.

Formaldehyde was detected in the equipment blank associated with the December 2014 water samples. All sample results were initially below the RL but have been qualified to be non-detect at the RL (UB).

Acetone was detected in the trip blank associated with the September 2014 samples. All sample results fell within the action limit and have been qualified to be non-detect (UB).

7.0 Conclusions

Data usability for program objectives for the surface-water samples collected in the South Branch of Bear Creek is 100%. Presence or absence of constituents has been confirmed for all analytes. Quantitative results for constituent measurements are supported by QC measures that, with minor exceptions, met method and laboratory requirements.

Quantitative results demonstrate compliance/non-compliance with standards and regulatory limits within an acceptable range of accuracy.

Table 1: Applicable Water Quality Standards for Beazer/INDSPEC Site, Petrolia, PA

Beazer/INDSPEC Site Constituents	PAWQS-CCC μg/L	PAWQS-CMC µg/L	PAWQS- HHC µg/L	Maximum Surface Water Detection 2014 µg/L
Benzene	130	640	1.2	0.28 J
2,3',4-Trihydroxydiphenyl			-	ND (50 U)
Benzenesulfonic acid	1,200,000	2,000,000	-	54
Formaldehyde	440	2,200	700	15 J
m-Benzenedisulfonic acid	1,600,000	2,600,000	-	3,700
p-Phenolsulfonic acid	1,400,000	3,500,000	-	550
Resorcinol	7,200	28,000	2,700	540
Phenol			-	ND (0.51 U)
Sulfate				100

Notes:

- - = not analyzed

CCC = Criteria Continuous Concentration

CMC = Criteria Maximum Concentration HHC = Human Health Criteria

J = estimated value

ND = non-detect

PAWQS = Pennsylvania Water Quality Standard

μg/L = micrograms per liter
UJ = non-detect, estimated detection limit